NAT'L INST. OF STAND & TECH
A11105 973907
REFERENCE
NBS
Publi-
cations

NBS TECHNICAL NOTE 1185

U.S. DEPARTMENT OF COMMERCE/National Bureau of Standards

Bibliography of Data on Electrical Breakdown in Gases

QC
100
.U5753
No.1185
1934

NATIONAL BUREAU OF STANDARDS

The National Bureau of Standards[1] was established by an act of Congress on March 3, 1901. The Bureau's overall goal is to strengthen and advance the Nation's science and technology and facilitate their effective application for public benefit. To this end, the Bureau conducts research and provides: (1) a basis for the Nation's physical measurement system, (2) scientific and technological services for industry and government, (3) a technical basis for equity in trade, and (4) technical services to promote public safety. The Bureau's technical work is performed by the National Measurement Laboratory, the National Engineering Laboratory, and the Institute for Computer Sciences and Technology.

THE NATIONAL MEASUREMENT LABORATORY provides the national system of physical and chemical and materials measurement; coordinates the system with measurement systems of other nations and furnishes essential services leading to accurate and uniform physical and chemical measurement throughout the Nation's scientific community, industry, and commerce; conducts materials research leading to improved methods of measurement, standards, and data on the properties of materials needed by industry, commerce, educational institutions, and Government; provides advisory and research services to other Government agencies; develops, produces, and distributes Standard Reference Materials; and provides calibration services. The Laboratory consists of the following centers:

Absolute Physical Quantities[2] — Radiation Research — Chemical Physics — Analytical Chemistry — Materials Science

THE NATIONAL ENGINEERING LABORATORY provides technology and technical services to the public and private sectors to address national needs and to solve national problems; conducts research in engineering and applied science in support of these efforts; builds and maintains competence in the necessary disciplines required to carry out this research and technical service; develops engineering data and measurement capabilities; provides engineering measurement traceability services; develops test methods and proposes engineering standards and code changes; develops and proposes new engineering practices; and develops and improves mechanisms to transfer results of its research to the ultimate user. The Laboratory consists of the following centers:

Applied Mathematics — Electronics and Electrical Engineering[2] — Manufacturing Engineering — Building Technology — Fire Research — Chemical Engineering[2]

THE INSTITUTE FOR COMPUTER SCIENCES AND TECHNOLOGY conducts research and provides scientific and technical services to aid Federal agencies in the selection, acquisition, application, and use of computer technology to improve effectiveness and economy in Government operations in accordance with Public Law 89-306 (40 U.S.C. 759), relevant Executive Orders, and other directives; carries out this mission by managing the Federal Information Processing Standards Program, developing Federal ADP standards guidelines, and managing Federal participation in ADP voluntary standardization activities; provides scientific and technological advisory services and assistance to Federal agencies; and provides the technical foundation for computer-related policies of the Federal Government. The Institute consists of the following centers:

Programming Science and Technology — Computer Systems Engineering.

---

[1] Headquarters and Laboratories at Gaithersburg, MD, unless otherwise noted; mailing address Washington, DC 20234.

[2] Some divisions within the center are located at Boulder, CO 80303.

NATIONAL BUREAU
OF STANDARDS
LIBRARY

Ref
QC
100
.U5753
No. 1185
1984

Bibliography of Data on Electrical Breakdown in Gases

R. J. Van Brunt
W. E. Anderson

Center for Electronics and Electrical Engineering
National Engineering Laboratory
National Bureau of Standards
Washington, DC 20234

Sponsored by:

Office of Electric Energy Systems
Department of Energy
Washington, DC 20585

U.S. DEPARTMENT OF COMMERCE, Malcolm Baldrige, Secretary
NATIONAL BUREAU OF STANDARDS, Ernest Ambler, Director

Issued April 1984

National Bureau of Standards Technical Note 1185
Natl. Bur. Stand. (U.S.),Tech. Note 1185, 170 pages (Apr. 1984)
CODEN: NBTNAE

U.S. GOVERNMENT PRINTING OFFICE
WASHINGTON: 1984

For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D C 20402

TABLE OF CONTENTS

Page

LIST OF TABLES. iv

Abstract. 1

I. Introduction 1

II. Criteria for Selection 3

II. Arrangement of Bibliography. 5

IV. Definitions of Codes and Notations. 5

V. Acknowledgments. 9

VI. Gas Index. 10

VII. Author Index 102

VIII. References 122

IX. Technical Conference Proceedings 164

LIST OF TABLES

Page

Table I. Definition of Category Code 6

BIBLIOGRAPHY OF DATA ON ELECTRICAL BREAKDOWN IN GASES

R. J. Van Brunt and W. E. Anderson

This report consists of a bibliography of currently published data on electrical breakdown in gases. The bibliography contains a list of archival papers and books published since 1950, an index indicating the references that give particular types of data for each gas, an author index, and a list of relevant, regular technical conferences. The citations given in the bibliography contain experimental or theoretical data on breakdown which include:

1) sparking potentials;
2) breakdown voltages;
3) critical fields, or field-to-gas density ratios;
4) corona inception voltages;
5) voltage-time characteristics;
6) relative and absolute dielectric strengths; and
7) breakdown probabilities.

Types of data considered include those which apply to uniform and nonuniform fields; ac, dc, and impulse voltages; and possible effects of particles, surfaces, interfaces, and corona. This bibliography is intended to serve as a guide in locating data on breakdown which are most relevant to particular applications.

Key words: bibliography; critical fields; corona onset; discharge inception; electrical breakdown; gases; sparking potentials.

I. Introduction

This bibliography is intended to serve as a guide to the currently available published data on electrical breakdown for gases and vapors. It is generally recognized that although an enormous quantity of data exists, it is often difficult to locate those most applicable to a given set of conditions. This is due to the complex nature of data on electrical breakdown which depend on a broad range of conditions including widely different gas pressures and temperatures, gas composition, electrode materials, electrode configurations, voltage waveforms, proximity of solid dielectrics, etc. All of these parameters can be expected to have a significant influence on the electrical breakdown characteristics of a system. Thus, for example, data obtained for uniform-electric-field configurations cannot generally give reliable predictions of breakdown in highly nonuniform electric-field configurations. Similarly data found for slowly varying or constant electric fields may not be applicable to situations where there are rapidly varying fields. In general, the breakdown potential of an electrode gap is not solely a property of the insulating gas medium. With this complexity in mind, this bibliography is designed to help simplify the task of finding data which correspond to configurations or operating conditions that most nearly match those for particular applications of interest.

The information contained in this bibliography exists in computerized form which can be easily updated and periodically printed out as additional relevant references are found. Revised and updated versions of this bibliography, either as computer printout or in floppy disk form, will periodically be made available upon request to the National Bureau of Standards, Electrosystems Division, Washington, DC 20234.

The bibliography in its present form is believed to include most of the major archival papers and books published since 1950 which contain data on electrical breakdown for insulating gases. All of the references listed have been examined to determine that they do indeed contain breakdown data. In the category of electrical-breakdown data are included:

1) sparking potentials;
2) breakdown voltages;
3) critical fields, or field-to-gas density ratios;
4) corona inception voltages;
5) voltage-time characteristics;
6) relative and absolute dielectric strengths; and
7) breakdown probabilities.

These are all closely related quantities in the sense that they indicate the applied potential or electric field at which a sufficiently high rate of ionization occurs so that the conductivity of the gas reaches the point where discharge initiation or electrical breakdown will occur with significant probability. There are, however, distinctions among these quantities which are not always clearly defined or discussed in the literature, and no attempt has been made to address these issues in preparing the bibliography.

As an example, corona inception (also called "discharge inception" or "partial discharge inception") usually refers to the onset of a self-sustaining, localized discharge near the most highly stressed electrode in a nonuniform-electric-field gap. Although a corona discharge enhances the conductivity of the gas, it is not usually considered to be a true breakdown because it does not bridge the electrode gap, i.e., it is not associated with ionization of the gas along the entire distance between two electrodes. In most papers, the distinction between corona inceptions and breakdown voltages is made quite clear and, as a general rule, corona inception will occur at a lower voltage than complete breakdown in nonuniform-field gaps.

It is nevertheless evident that in some cases there are disagreements or uncertainties in the definitions of the quantities considered here for inclusion as breakdown data. "Dielectric strength" in most cases, but not always, corresponds to breakdown for uniform, static-electric-field configurations under gap and pressure conditions where the similarity law holds, namely that the breakdown voltage is a function only of the product of gas pressure and electrode gap spacing. Data on critical-field to gas-density ratios also presumably apply only to uniform-electric field situations inasmuch as they are usually derived from measurements or calculations of ionization growth or ionization and attachment coefficients for gases at low pressures in uniform fields. The extent to which these data may be reliably applied to nonuniform-field conditions or to gas pressures different from those at which the coefficients were determined is generally unknown. Caution should be exercised in the application of such data to configurations that deviate even slightly from uniformity such as sphere gaps or as might result from electrode surface irregularities. The effects of minute surface protrusions, small particles, dust, surface charges, etc., which can perturb the electric field in a gas are discussed in a number of references included. Where possible these have been indicated by the code assigned to each reference as discussed below.

II. Criteria for Selection

The references cited in this bibliography were selected according to the following criteria:

a) they correspond to an archival publication;
b) they contain experimental or theoretical data on breakdown or corona inception voltages or fields;
c) they include gases and conditions considered applicable to electrical insulation; and
d) they have been published since 1950.

The list has been restricted to archival publications, i.e., journal publications and books, because: a) these are readily available to almost everyone; and b) data presented in these articles have presumably been subjected to critical review and thus have a greater likelihood of being correct. There are, of course, many conference proceedings and technical reports which may be assumed to contain useful and reliable data on breakdown. On the other hand, data presented at conferences or in reports, unless previously published, are generally considered to be preliminary. Also, there are many conference proceedings and technical reports that are not widely distributed and thus may be difficult to obtain. Some of the major regular technical conferences where data on gas breakdown have been presented and for which proceedings or abstracts were usually published are listed here separately (Section IX). No attempt has been made to identify specific papers or data given at these conferences.

All of the papers listed have been examined to verify that they do indeed contain data on electrical breakdown as defined in the Introduction. No attempt was made to evaluate critically any data given in these references as a basis for selection. It is clear that in some cases there are obvious disagreements and disputes which may or may not have been resolved. Included here are all data independent of their known or assumed reliability. Papers which deal only with the phenomonology or physics of gas breakdown were not included despite their possible importance in adding to our understanding of the mechanisms involved. Again this bibliography is intended to be an aid to those in need of data on breakdown.

The list has been restricted to gases considered relevant to electrical-insulation technology. Gases such as metal vapors which are unlikely components in gaseous insulation have been excluded unless they happen to have been studied along with other gases which are of relevance. There are, however, metal vapors like Hg which might be unavoidable components or important contaminants in gaseous insulation. Serious consideration will be given to including these in future versions of the bibliography.

The data in the bibliography cover a wide range of gas pressures and temperatures, and although in some cases significant and interesting dependences on these parameters are observed, no attempt is made to indicate the ranges considered in each case. Thus, for example, two or more references indicated as having data on static-uniform-field breakdown for N_2 may actually correspond to results obtained at quite different pressures and temperatures.

The electrode and field configurations considered vary over a wide range, e.g., from small uniform field gaps to large, practical electric-power-line simulations. The results for static, uniform field conditions are generally considered to be more fundamental in indicating the dielectric strength for collisional-ionization processes. It is clear, however, that the gas will generally behave quite differently under less uniform-gap and time-varying-voltage conditions and, therefore, because results for these conditions are of considerable importance in the design of the insulating systems, their inclusion was considered imperative.

For alternating voltages, only data on breakdown at the power frequencies of 60 Hz and 50 Hz have been included. It might be argued that measurements or calculations performed for higher frequencies are also relevant to insulation applications. Perhaps these should be included in future versions of this bibliography. They were arbitrarily excluded here because of difficulties in agreeing on an acceptable way of categorizing these data, and because of the limited usefulness of this kind of information for the design and testing of electrical insulation, particularly in electric-power applications.

The exclusion of papers and books published before 1950 should not be interpreted as a denigration of these works. Although it is true that some earlier studies have since been supplanted by more recent works, there certainly remains much valuable information on breakdown from investigations carried out before 1950. It was essential to place some restrictions on the number of references to be included, and it seemed unnecessary to include papers which have already been adequately discussed in the previous reviews listed here. The absence of any publications which might be perceived as meeting the above criteria is most likely due to the fact that they have not been found. Hopefully, such omissions can be corrected in future versions of this bibliography.

III. Arrangement of Bibliography

The report is arranged in four parts: an index to the bibliography which indicates the types of breakdown data available for each gas; an author index; a list of citations with assigned numbers determined by the alphabetical order of principal author; and a list of relevant technical conferences. The index lists the gases and gas mixtures alphabetically according to the stoichiometric chemical formulae. The symbols "x" beside the reference numbers in the index indicate that they contain information on the influences of particles, surfaces, interfaces, or corona on breakdown.

IV. Definitions of Codes and Notations

All references that are cited here were entered into a computer with a corresponding code which gives an indication of the type of data which they contain. The code consists of two parts. The first part gives the gas or gases that have been included according, where possible, to their chemical formulae, and the second part gives the nature of the investigation. Included in the latter are:

a) an identifier indicating that the work is either experimental, theoretical, a review, or some combination of these;
b) an identifier indicating if the electric field configuration is either uniform or nonuniform;
c) an identifier indicating the type of voltages applied, i.e., either dc, ac (at power frequencies of 60 or 50 Hz), or impulse; and
d) an identifier of special effects considered, which was limited to:

    1) surface effects;
    2) particle effects;
    3) interface effects; and
    4) corona.

The computer code used in the categorization of each reference is defined in Table I. The code assigned to each reference consists of at least one entry each from sets 1-3, and one or more possible entries from set 4 as indicated in the Table. These codes do not appear explicitly in the present printed version, although they are implied in the index. The codes do, however, appear in the computer disk file format. It is important to emphasize that the codes have been assigned to references and not to the gases. References which include more than one gas may not necessarily include the same types of data for all gases. This is especially likely in review articles. Therefore, the index should be interpreted only as indicating the possible types of data which might be available for each gas. The actual existence of such data can, of course, only be verified by examination of the references cited.

Table I. Definition of Category Code

Set	Code	Category
1	E	Experimental
	T	Theoretical
	R	Review
2	U	Uniform Field
	N	Nonuniform Field
3	D	Direct Voltage
	A	Alternating Voltage
	I	Impulse
4	S	Surface Effects
	P	Particle Effects
	F	Interface Effects
	C	Corona

It should be noted that special difficulties were often encountered in attempting to decide on the proper code to be entered for each citation. Attention should be drawn to some of these. First it should be clear that all papers fit into one or more of the categories of experimental, theoretical, or review. There are cases where more than one of these applied. For some of these cases, however, only one category may be indicated. This was generally not an oversight, but rather a judgment based upon what appeared to be the predominant emphasis of the work.

There was another difficulty sometimes encountered in attempting to decide if a particular work applied to either uniform or nonuniform fields. Results obtained in weakly nonuniform-field gaps, e.g., sphere-sphere gaps, are often referred to in the literature as "uniform-field breakdown." Some authors, however, would disagree with this inference and prefer a stricter definition of uniformity as applied to gaps used for breakdown measurements. In cases where, despite the claims of the authors, doubt seemed to exist about the appropriateness for inclusion under uniform-field breakdown, both the uniform and nonuniform field categories were assigned even though the results for only one electrode configuration may have been reported.

Data included here under the category of alternating voltage (ac) relate only to the power frequencies of 50 or 60 Hz. Sometimes the references indicated in this category also present data at other frequencies. These, however, were not considered in determining the codes which were assigned.

In considering the category of impulse breakdown, no distinction was made as to the type of impulse voltage used. Thus, data in this category may include standard lightning and switching impulses as well as other non-standard impulse shapes and repetition rates. They may also include impulses superimposed on dc or ac voltages.

In the category of surface effects are included investigations of the dependence of breakdown on properties of the electrode surfaces such as material roughness. All other "surface" effects are placed in the category of interface effects which mainly have to do with breakdown in the gas near or along a solid insulating surface. The category of particle effects includes investigations of the role of both conducting and non-conducting solid particles on breakdown in a gas. The positions of the particles, although significant, have not been specified here. The particles may either be suspended in the gas, attached to electrodes or interface surfaces, or be in random motion in the discharge gap.

If papers are included under the category of corona, this usually means that data on corona inception or onset voltages are given. In a few special cases it may indicate that effects of corona on breakdown have been considered or evaluated. In general, corona-onset voltages give another measure of the dielectric strength of the gas can often be more easily predicted theoretically than the breakdown voltage in nonuniform-electric-field gaps.

The gases are denoted and listed alphabetically according to their presumed stoichiometric formulae with notation given if possible to indicate molecular structure. All isomers are grouped together in the index listing. For some of the more complex molecular species, such as the fluorocarbon and hydrocarbon gases, there is a lack of consistency in denoting these by chemical formulae. In some cases only names of the compounds were given without indication of their molecular structures. In a few cases it was admitted that the correct structure was unknown. Trade names or non-standard terms have also been used to denote the gases studied. Special difficulties appeared in the designations of isomers. Sometimes only the molecular stoichiometry, or relative proportions of the atomic constituents were given without regard to the actual molecular structure. Because of these difficulties, the identities of some of the organic molecular species given here may be questionable. They are listed here according to their presumed stoichiometric formulae with indications given, where possible, about the molecular structure. In some cases the specific isomers considered may not be correctly indicated here, and it may be necessary to examine the original references to determine the possible correct molecular structure. It should also be cautioned that for data obtained at very high temperatures where molecular dissociation can occur, the identity of molecular gases may be brought into question due to the possible presence of atomic species and free radicals.

For gas mixtures, the constituents are listed in alphabetical order independent of their known relative concentrations, e.g., $c\text{-}C_4F_8 + N_2 + SF_6$ and $CO_2 + He + N_2$. Air, however, is treated as a special mixture and is simply denoted here as AIR. The mixture $N_2 + O_2$ which is also listed may or may not contain the proper proportions of N_2 and O_2 to be considered as "air."

In the case of breakdown in air, the effect of humidity can be quite important. When the gas is here denoted by AIR + H_2O, it can be assumed that the data apply to humid air in which the water vapor content is known and specified. If the gas is simply denoted as AIR, then it was either indicated in the paper as being "dry" air, or the moisture content was not explicitly defined. While most authors indicate whether or not the air is "dry," some do not.

For this bibliography electrical-breakdown data in composite insulation have been included only if the gas is a major, distinct, and well-separated component. Thus, for example, breakdown in solids impregnated with gases has not been included. The possible presence of other nongaseous insulating materials has been indicated, if possible, by inclusion in one or more of the categories corresponding to surface, particle, or interface effects.

V. Acknowledgments

This report was prepared at the request and encouragement of the IEEE Insulation Society Technical Committee S-32-11 on Gaseous Dielectrics. We would like to express our appreciation for the valuable suggestions and contributions of the various members of the committee, especially Dr. S. J. Dale, Committee Chairman, Westinghouse Corp.; Dr. R. Hackam, University of Windsor, Canada; Dr. C. Miller, General Electric Company; Dr. W. Pfeiffer, Technische Hochschule, Darmstadt, West Germany; Dr. A. Pedersen, The Technical University, Lyngby, Denmark; Dr. J. K. Nelson, Rensselaer Polytechnic Institute, Troy, NY; and Dr. K. D. Srivastava, University of Waterloo, Canada.

VI. Gas Index

AIR

EXPERIMENTAL

			PARTICLE	SURFACE	INTERFACE	CORONA
DC	UNIFORM	4				
		37		X		
		42				
		58				
		61		X		
		71				
		88		X		
		106				
		117				X
		126		X		
		138				
		140				
		145				
		148				
		151				
		164				
		168				X
		173		X		
		193				X
		194				X
		243				
		262		X		
		263				
		266				
		273				
		279			X	
		313				X
		326				
		357				X
		360				
		364		X		
		381				
		389				
		390				
		395	X			
		399				
		408				
		442				
DC	NONUNIFORM	19				X
		38			X	X
		50				
		71				
		94	X			
		118				
		141				X
		142				X
		149				X
		160				X

			PARTICLE	SURFACE	INTERFACE	CORONA
AIR (cont.)		162				X
		164				
		168				X
		174				X
		193				X
		194				X
		204				
		219				
		237				
		266				
		279			X	
		288				
		293				X
		307				
		313				X
		325				
		326				
		328				X
		332			X	
		333				
		357				X
		378				X
		379				X
		396				X
		407				X
		415				X
		421				X
		433				
		440				X
AC	UNIFORM	36		X		
		37		X		
		47				X
		70				X
		71				
		72				X
		168				X
		173		X		
		194				X
		208		X	X	X
		279			X	
		313				X
		326				
		392				
		395	X			
AC	NONUNIFORM	22			X	
		23			X	
		47				X
		50				
		70				X
		71				
		72				X
		87				
		94	X			
		168				X

		PARTICLE	SURFACE	INTERFACE	CORONA
AIR (cont.)	175				X
	176			X	
	182	X	X		
	194				X
	204				
	208		X	X	X
	219				
	231			X	
	257				
	279			X	
	313				X
	314		X	X	
	325				
	326				
	328				X
	358		X		
	375			X	
	407				X
	440				X
	453				
IMPULSE UNIFORM	47				X
	70				X
	71				
	72				X
	117				X
	139				
	140				
	148				
	187				
	296				
	313				X
	341				
	381				
	391				
	405				
	455				
IMPULSE NONUNIFORM	2				
	5				
	6				
	7				
	11				X
	12				X
	20				X
	26				
	27				X
	31				
	35		X		X
	47				X
	50				
	70				X
	71				
	72				X
	74				
	75				

		PARTICLE	SURFACE	INTERFACE	CORONA
AIR (cont.)	100				
	118				
	146				
	147				
	149				X
	159				
	175				X
	176			X	
	177				
	179	X			
	181				X
	189				
	191				
	210				
	213				
	220				X
	237				
	247				
	248		X	X	
	255				
	256				
	257				
	259				
	286				
	287				
	288				
	289				X
	290				
	291				
	293				X
	307				
	313				X
	327				
	332			X	
	339				
	340				
	341				
	370			X	
	371				X
	375			X	
	380				
	382				X
	388				
	407				X
	409				X
	411				X
	412				
	418		X		
	420				
	427				
	429				
	431				
	441				X
	443				X

			PARTICLE	SURFACE	INTERFACE	CORONA
AIR (cont.)		444			X	
		445				
		448				X
		449				X
		452				
		453				
		455				
		463				
THEORETICAL						
DC	UNIFORM	152				
		163				
		205				
		207				X
		209				
		232				X
		268				
		273				
		374				
		414				X
		442				
DC	NONUNIFORM	1				X
		19				X
		163				
		204				
		207				X
		216				X
		232				X
		281				X
		332			X	
		335				X
		337				X
		346				X
		385				X
		414				X
AC	UNIFORM	36		X		
AC	NONUNIFORM	204				
		257				
IMPULSE	UNIFORM	297				
IMPULSE	NONUNIFORM	5				
		7				
		13				
		147				
		189				
		192				
		210				
		211				
		235				
		255				
		257				
		265				
		332			X	
		383				X
		384				X

AIR (cont.)
REVIEW

			PARTICLE	SURFACE	INTERFACE	CORONA
DC	UNIFORM	45				X
		48				
		66		X		X
		71				
		73		X		
		88		X		
		96	X	X	X	
		105				
		119		X		
		148				
		163				
		209				
		244		X		X
		260		X		
		264				X
		285		X	X	X
		334		X		X
		368				
		422				X
		435				
DC	NONUNIFORM	45				X
		48				
		66		X		X
		71				
		73		X		
		96	X	X	X	
		158				X
		163				
		204				
		234				
		244		X		X
		260		X		
		264				X
		285		X	X	X
		334		X		X
		422				X
		447				X
AC	UNIFORM	45				X
		66		X		X
		70				X
		71				
		73		X		
		96	X	X	X	
		105				
		285		X	X	X
		422				X
AC	NONUNIFORM	45				X
		66		X		X
		70				X
		71				
		73		X		
		96	X	X	X	

		PARTICLE	SURFACE	INTERFACE	CORONA
AIR (cont.)	204				
	212				
	222		X	X	
	234				
	257				
	285		X	X	X
	422				X
	447				X
IMPULSE UNIFORM	45				X
	70				X
	71				
	73		X		
	96	X	X	X	
	148				
	244		X		X
	285		X	X	X
	422				X
IMPULSE NONUNIFORM	35		X		X
	45				X
	70				X
	71				
	73		X		
	96	X	X	X	
	212				
	221				
	222		X	X	
	234				
	244		X		X
	257				
	285		X	X	X
	422				X
	447				X
AIR+CCl_2F_2					
REVIEW					
DC UNIFORM	96	X	X	X	
DC NONUNIFORM	96	X	X	X	
AC UNIFORM	96	X	X	X	
AC NONUNIFORM	96	X	X	X	
IMPULSE UNIFORM	96	X	X	X	
IMPULSE NONUNIFORM	96	X	X	X	
AIR+CO_2					
EXPERIMENTAL					
DC NONUNIFORM	160				X
AIR+H_2					
EXPERIMENTAL					
DC UNIFORM	262		X		
AIR+H_2O					
EXPERIMENTAL					
DC UNIFORM	8				
	58				

			PARTICLE	SURFACE	INTERFACE	CORONA
AIR+H_2O (cont.)		61		X		
		238				
		243				
		357				X
		361				
		381				
		387				
		393				
		394				
DC	NONUNIFORM	160				X
		162				X
		328				X
		357				X
		387				
		433				
AC	NONUNIFORM	176			X	
		328				X
		375			X	
		386				
		453				
IMPULSE	UNIFORM	187				
		381				
		387				
IMPULSE	NONUNIFORM	2				
		9				
		10				
		11				X
		35		X		X
		69				
		176			X	
		177				
		179	X			
		180				
		226				
		240				
		241				
		247				
		248		X	X	
		287				
		318				X
		371				X
		375			X	
		386				
		387				
		388				
		410				
		420				
		426				
		428				
		430				
		431				
		432			X	
		439				
		444			X	

			PARTICLE	SURFACE	INTERFACE	CORONA
AIR+H_2O (cont.)		446				X
		453				
REVIEW						
DC	UNIFORM	45				X
		96	X	X	X	
		244		X		X
		285		X	X	X
		422				X
DC	NONUNIFORM	45				X
		96	X	X	X	
		244		X		X
		285		X	X	X
		422				X
		447				X
AC	UNIFORM	45				X
		96	X	X	X	
		285		X	X	X
		422				X
AC	NONUNIFORM	45				X
		96	X	X	X	
		222		X	X	
		285		X	X	X
		422				X
		447				X
IMPULSE	UNIFORM	45				X
		96	X	X	X	
		244		X		X
		285		X	X	X
		422				X
IMPULSE	NONUNIFORM	35		X		X
		45				X
		96	X	X	X	
		222		X	X	
		244		X		X
		285		X	X	X
		422				X
		447				X
AIR+N_2						
EXPERIMENTAL						
DC	UNIFORM	88		X		
REVIEW						
DC	UNIFORM	88		X		
AIR+NO+NO_2						
EXPERIMENTAL						
DC	NONUNIFORM	160				X
AIR+SF_6						
EXPERIMENTAL						
DC	UNIFORM	88		X		
		245				X
		273				
		276				

			PARTICLE	SURFACE	INTERFACE	CORONA
AIR+SF_6 (cont.)		278				
		399				
DC	NONUNIFORM	245				X
		274				X
AC	NONUNIFORM	133				
IMPULSE	UNIFORM	245				X
IMPULSE	NONUNIFORM	133				
		245				X
		382				X
		443				X
THEORETICAL						
DC	UNIFORM	273				
		278				
		316				X
DC	NONUNIFORM	316				X
REVIEW						
DC	UNIFORM	88		X		
		251	X	X		X
		270	X	X		
		435				
DC	NONUNIFORM	251	X	X		X
		270	X	X		
AC	UNIFORM	251	X	X		X
AC	NONUNIFORM	251	X	X		X
IMPULSE	UNIFORM	270	X	X		
IMPULSE	NONUNIFORM	270	X	X		
Ar						
EXPERIMENTAL						
DC	UNIFORM	81				
		82				
		157		X		
		164				
		196				
		197				
		198				
		199				
		224		X		
		292				
		329				
		353				
		389				
		390				
DC	NONUNIFORM	107				X
		149				X
		164				
		170		X		X
		309				
AC	NONUNIFORM	67			X	
IMPULSE	UNIFORM	139				
		224		X		
		324	X			
IMPULSE	NONUNIFORM	149				X
		324	X			

			PARTICLE	SURFACE	INTERFACE	CORONA
Ar (cont.)						
THEORETICAL						
DC	UNIFORM	163				
DC	NONUNIFORM	163				
IMPULSE	UNIFORM	324	X			
IMPULSE	NONUNIFORM	324	X			
REVIEW						
DC	UNIFORM	45				X
		64				
		66		X		X
		92	X	X	X	
		163				
		244		X		X
		253				
		260		X		
		261		X		
		264				X
		280		X	X	
		285		X	X	X
		334		X		X
		438				
DC	NONUNIFORM	45				X
		66		X		X
		163				
		244		X		X
		260		X		
		264				X
		285		X	X	X
		334		X		X
AC	UNIFORM	45				X
		66		X		X
		285		X	X	X
AC	NONUNIFORM	45				X
		66		X		X
		285		X	X	X
IMPULSE	UNIFORM	45				X
		92	X	X	X	
		244		X		X
		285		X	X	X
IMPULSE	NONUNIFORM	45				X
		244		X		X
		285		X	X	X
Ar+C_2H_2						
EXPERIMENTAL						
DC	UNIFORM	198				
Ar+C_2H_4						
EXPERIMENTAL						
DC	UNIFORM	198				
		199				

			PARTICLE	SURFACE	INTERFACE	CORONA
Ar+C_2H_6						
EXPERIMENTAL						
DC	UNIFORM	197				
Ar+C_3F_8						
EXPERIMENTAL						
DC	UNIFORM	81				
Ar+C_3H_8						
EXPERIMENTAL						
DC	UNIFORM	196				
Ar+C_4H_8						
EXPERIMENTAL						
DC	UNIFORM	199				
Ar+n-C_5H_{12}						
EXPERIMENTAL						
DC	UNIFORM	198				
DC	UNIFORM	199				
Ar+C_6H_6						
EXPERIMENTAL						
DC	UNIFORM	199				
Ar+n-C_8H_{18}						
EXPERIMENTAL						
DC	UNIFORM	199				
Ar+CH_4						
EXPERIMENTAL						
DC	UNIFORM	196				
Ar+CO_2						
EXPERIMENTAL						
DC	NONUNIFORM	107				X
Ar+Cs						
EXPERIMENTAL						
DC	UNIFORM	127				
Ar+H_2						
REVIEW						
DC	UNIFORM	264				X
DC	NONUNIFORM	264				X
Ar+H_2O						
REVIEW						
DC	UNIFORM	244		X		X
		264				X
DC	NONUNIFORM	244		X		X
		264				X
IMPULSE	UNIFORM	244		X		X
IMPULSE	NONUNIFORM	244		X		X

				PARTICLE	SURFACE	INTERFACE	CORONA
Ar+He							
EXPERIMENTAL							
	DC	UNIFORM	80		X		
Ar+Hg							
REVIEW							
	DC	UNIFORM	264				X
	DC	NONUNIFORM	264				X
Ar+Hg+Ne							
EXPERIMENTAL							
	DC	UNIFORM	345		X		
Ar+K							
EXPERIMENTAL							
	DC	UNIFORM	127				
$Ar+N_2$							
EXPERIMENTAL							
	DC	NONUNIFORM	107				X
REVIEW							
	DC	UNIFORM	264				X
	DC	NONUNIFORM	264				X
$Ar+N_2+SF_6$							
EXPERIMENTAL							
	DC	UNIFORM	82				
Ar+Na							
EXPERIMENTAL							
	DC	UNIFORM	127				
Ar+Ne							
EXPERIMENTAL							
	DC	UNIFORM	77				
			345		X		
	DC	NONUNIFORM	107				X
REVIEW							
	DC	UNIFORM	45				X
			66		X		X
			244		X		X
			280		X	X	
	DC	NONUNIFORM	45				X
			66		X		X
			244		X		X
	AC	UNIFORM	45				X
			66		X		X
	AC	NONUNIFORM	45				X
			66		X		X
	IMPULSE	UNIFORM	45				X
			244		X		X
	IMPULSE	NONUNIFORM	45				X
			244		X		X

			PARTICLE	SURFACE	INTERFACE	CORONA
$Ar+O_2$						
EXPERIMENTAL						
DC	NONUNIFORM	107				X
REVIEW						
DC	UNIFORM	264				X
DC	NONUNIFORM	264				X
$Ar+SF_6$						
EXPERIMENTAL						
DC	UNIFORM	82				
BCl_3						
REVIEW						
DC	UNIFORM	45				X
		285		X	X	X
		438				
DC	NONUNIFORM	45				X
		285		X	X	X
AC	UNIFORM	45				X
		285		X	X	X
AC	NONUNIFORM	45				X
		285		X	X	X
IMPULSE	UNIFORM	45				X
		285		X	X	X
IMPULSE	NONUNIFORM	45				X
		285		X	X	X
BF_3						
EXPERIMENTAL						
DC	UNIFORM	110				
DC	NONUNIFORM	283				
REVIEW						
DC	UNIFORM	45				X
		438				
DC	NONUNIFORM	45				X
AC	UNIFORM	45				X
AC	NONUNIFORM	45				X
IMPULSE	UNIFORM	45				X
IMPULSE	NONUNIFORM	45				X
Br_2						
EXPERIMENTAL						
DC	UNIFORM	367				
		373				
THEORETICAL						
DC	UNIFORM	373				
$C_{10}F_{18}$						
EXPERIMENTAL						
DC	UNIFORM	315				
$n-C_{10}H_{22}$						
EXPERIMENTAL						
DC	UNIFORM	301				

			PARTICLE	SURFACE	INTERFACE	CORONA
$C_{11}F_{20}$						
EXPERIMENTAL						
DC	UNIFORM	315				
$C_{12}F_{27}N$						
EXPERIMENTAL						
AC	UNIFORM	33				
		70				X
AC	NONUNIFORM	33				
		70				X
IMPULSE	UNIFORM	33				
		70				X
IMPULSE	NONUNIFORM	33				
		70				X
REVIEW						
DC	UNIFORM	32				
		45				X
		438				
DC	NONUNIFORM	45				X
AC	UNIFORM	45				X
		70				X
AC	NONUNIFORM	45				X
		70				X
IMPULSE	UNIFORM	45				X
		70				X
IMPULSE	NONUNIFORM	45				X
		70				X
$C_{14}F_{24}$						
EXPERIMENTAL						
AC	UNIFORM	70				X
AC	NONUNIFORM	70				X
IMPULSE	UNIFORM	70				X
IMPULSE	NONUNIFORM	70				X
	REVIEW					
DC	UNIFORM	45				X
		150				
		438				
DC	NONUNIFORM	45				X
		150				
AC	UNIFORM	45				X
		70				X
		150				
AC	NONUNIFORM	45				X
		70				X
		150				
IMPULSE	UNIFORM	45				X
		70				X
		150				
IMPULSE	NONUNIFORM	45				X
		70				X
		150				

			PARTICLE	SURFACE	INTERFACE	CORONA
$C_2Cl_2F_4$						
EXPERIMENTAL						
DC	UNIFORM	114				
		203				
DC	NONUNIFORM	114				
AC	UNIFORM	392				
IMPULSE	UNIFORM	139				
REVIEW						
DC	UNIFORM	45				X
		73		X		
		203				
		258				X
		285		X	X	X
		437				
		438				
DC	NONUNIFORM	45				X
		73		X		
		258				X
		285		X	X	X
AC	UNIFORM	45				X
		73		X		
		285		X	X	X
AC	NONUNIFORM	45				X
		73		X		
		285		X	X	X
IMPULSE	UNIFORM	45				X
		73		X		
		258				X
		285		X	X	X
IMPULSE	NONUNIFORM	45				X
		73		X		
		258				X
		285		X	X	X
$C_2Cl_3F_3$						
EXPERIMENTAL						
DC	UNIFORM	114				
		156				
DC	NONUNIFORM	114				
		155				
THEORETICAL						
DC	UNIFORM	156				
REVIEW						
DC	UNIFORM	45				X
		73		X		
		150				
		258				X
		285		X	X	X
		438				
DC	NONUNIFORM	45				X
		73		X		
		150				
		258				X
		285		X	X	X

				PARTICLE	SURFACE	INTERFACE	CORONA
$C_2Cl_3F_3$ (cont.)							
	AC	UNIFORM	45				X
			73		X		
			150				
			285		X	X	X
	AC	NONUNIFORM	45				X
			73		X		
			150				
			285		X	X	X
	IMPULSE	UNIFORM	45				X
			73		X		
			150				
			258				X
			285		X	X	X
	IMPULSE	NONUNIFORM	45				X
			73		X		
			150				
			258				X
			285		X	X	X
1,1,1-$C_2Cl_3F_3$							
REVIEW							
	DC	UNIFORM	64				
1,1,2-$C_2Cl_3F_3$							
REVIEW							
	DC	UNIFORM	64				
$C_2Cl_3F_3$+SF_6							
EXPERIMENTAL							
	DC	UNIFORM	156				
THEORETICAL							
	DC	UNIFORM	156				
$C_2Cl_4F_2$							
REVIEW							
	DC	UNIFORM	73		X		
	DC	NONUNIFORM	73		X		
	AC	UNIFORM	73		X		
	AC	NONUNIFORM	73		X		
	IMPULSE	UNIFORM	73		X		
	IMPULSE	NONUNIFORM	73		X		
C_2ClF_3							
EXPERIMENTAL							
	DC	UNIFORM	114				
	DC	NONUNIFORM	114				
REVIEW							
	DC	UNIFORM	64				
			73		X		
			253				
	DC	NONUNIFORM	73		X		
	AC	UNIFORM	73		X		
	AC	NONUNIFORM	73		X		

			PARTICLE	SURFACE	INTERFACE	CORONA
C_2ClF_3 (cont.)						
IMPULSE	UNIFORM	73		X		
IMPULSE	NONUNIFORM	73		X		
C_2ClF_5						
EXPERIMENTAL						
DC	UNIFORM	114				
DC	NONUNIFORM	114				
AC	UNIFORM	392				
REVIEW						
DC	UNIFORM	45				X
		73		X		
		150				
		253				
		437				
		438				
DC	NONUNIFORM	45				X
		73		X		
		150				
AC	UNIFORM	45				X
		73		X		
		150				
AC	NONUNIFORM	45				X
		73		X		
		150				
IMPULSE	UNIFORM	45				X
		73		X		
		150				
IMPULSE	NONUNIFORM	45				X
		73		X		
		150				
C_2ClF_6						
REVIEW						
DC	UNIFORM	258				X
DC	NONUNIFORM	258				X
IMPULSE	UNIFORM	258				X
IMPULSE	NONUNIFORM	258				X
C_2F_2						
REVIEW						
DC	UNIFORM	253				
C_2F_3N						
EXPERIMENTAL						
DC	UNIFORM	114				
DC	NONUNIFORM	114				
REVIEW						
DC	UNIFORM	45				X
		150				
		280		X	X	
		435				
		436				
		437				

			PARTICLE	SURFACE	INTERFACE	CORONA
C_2F_3N (cont.)		438				
DC	NONUNIFORM	45				X
		150				
AC	UNIFORM	45				X
		150				
AC	NONUNIFORM	45				X
		150				
IMPULSE	UNIFORM	45				X
		150				
IMPULSE	NONUNIFORM	45				X
		150				
C_2F_6						
EXPERIMENTAL						
DC	UNIFORM	55				
		63				
		114				
		310				
DC	NONUNIFORM	114				
AC	UNIFORM	33				
		72				X
		392				
		457				
AC	NONUNIFORM	33				
		72				X
		457				
		460				
IMPULSE	UNIFORM	33				
		72				X
IMPULSE	NONUNIFORM	33				
		72				X
THEORETICAL						
DC	UNIFORM	55				
REVIEW						
DC	UNIFORM	45				X
		64				
		73		X		
		150				
		253				
		258				X
		435				
		436				
		437				
		438				
DC	NONUNIFORM	45				X
		73		X		
		150				
		258				X
AC	UNIFORM	45				X
		73		X		
		150				
AC	NONUNIFORM	45				X
		73		X		
		150				

			PARTICLE	SURFACE	INTERFACE	CORONA
C_2F_6 (cont.)						
IMPULSE	UNIFORM	45				X
		73		X		
		150				
		258				X
IMPULSE	NONUNIFORM	45				X
		73		X		
		150				
		258				X
C_2F_6O						
REVIEW						
DC	UNIFORM	253				
C_2F_6S						
REVIEW						
DC	UNIFORM	253				
C_2H_2						
EXPERIMENTAL						
DC	UNIFORM	198				
		201				
		202				
DC	NONUNIFORM	169				
THEORETICAL						
DC	UNIFORM	342				
		343				
REVIEW						
DC	UNIFORM	64				
		253				
		258				X
		437				
		438				
DC	NONUNIFORM	258				X
IMPULSE	UNIFORM	258				X
IMPULSE	NONUNIFORM	258				X
1,1,1-$C_2H_3F_3$+2-C_4F_6						
EXPERIMENTAL						
DC	UNIFORM	83				
1,1,1-$C_2H_3F_3$+2-C_4F_8						
EXPERIMENTAL						
DC	UNIFORM	85				
DC	NONUNIFORM	85				
THEORETICAL						
DC	UNIFORM	317				
1,1,1-$C_2H_3F_3$+SF_6						
EXPERIMENTAL						
DC	UNIFORM	83				
		85				
DC	NONUNIFORM	85				

				PARTICLE	SURFACE	INTERFACE	CORONA
1,1,1-$C_2H_3F_3$+SF_6 (cont.)							
THEORETICAL							
	DC	UNIFORM	317				
C_2H_3N							
EXPERIMENTAL							
	DC	UNIFORM	83				
REVIEW							
	DC	UNIFORM	64				
C_2H_3N+SF_6							
EXPERIMENTAL							
	DC	UNIFORM	83				
C_2H_4							
EXPERIMENTAL							
	DC	UNIFORM	104				
			198				
			200				
			201				
			202				
	DC	NONUNIFORM	104				
REVIEW							
	DC	UNIFORM	45				X
			258				X
			280		X	X	
	DC	NONUNIFORM	45				X
			258				X
	AC	UNIFORM	45				X
	AC	NONUNIFORM	45				X
	IMPULSE	UNIFORM	45				X
			258				X
	IMPULSE	NONUNIFORM	45				X
			258				X
C_2H_4+Kr							
EXPERIMENTAL							
	DC	UNIFORM	200				
REVIEW							
	DC	UNIFORM	45				X
	DC	NONUNIFORM	45				X
	AC	UNIFORM	45				X
	AC	NONUNIFORM	45				X
	IMPULSE	UNIFORM	45				X
	IMPULSE	NONUNIFORM	45				X
$C_2H_4Cl_2$							
REVIEW							
	DC	UNIFORM	285		X	X	X
	DC	NONUNIFORM	285		X	X	X
	AC	UNIFORM	285		X	X	X
	AC	NONUNIFORM	285		X	X	X
	IMPULSE	UNIFORM	285		X	X	X
	IMPULSE	NONUNIFORM	285		X	X	X

			PARTICLE	SURFACE	INTERFACE	CORONA
$1,1\text{-}C_2H_4Cl_2$						
REVIEW						
DC	UNIFORM	64				
C_2H_4O						
REVIEW						
DC	UNIFORM	437				
		438				
C_2H_5Br						
REVIEW						
DC	UNIFORM	285		X	X	X
DC	NONUNIFORM	285		X	X	X
AC	UNIFORM	285		X	X	X
AC	NONUNIFORM	285		X	X	X
IMPULSE	UNIFORM	285		X	X	X
IMPULSE	NONUNIFORM	285		X	X	X
C_2H_5Cl						
REVIEW						
DC	UNIFORM	45				X
		285		X	X	X
		437				
		438				
DC	NONUNIFORM	45				X
		285		X	X	X
AC	UNIFORM	45				X
		285		X	X	X
AC	NONUNIFORM	45				X
		285		X	X	X
IMPULSE	UNIFORM	45				X
		285		X	X	X
IMPULSE	NONUNIFORM	45				X
		285		X	X	X
C_2H_5I						
REVIEW						
DC	UNIFORM	285		X	X	X
DC	NONUNIFORM	285		X	X	X
AC	UNIFORM	285		X	X	X
AC	NONUNIFORM	285		X	X	X
IMPULSE	UNIFORM	285		X	X	X
IMPULSE	NONUNIFORM	285		X	X	X
C_2H_6						
EXPERIMENTAL						
DC	UNIFORM	114				
		115				
		197				
		201				
		202				
DC	NONUNIFORM	114				
		115				

			PARTICLE	SURFACE	INTERFACE	CORONA
n-C_2H_6						
REVIEW						
DC	UNIFORM	258				X
DC	NONUNIFORM	258				X
IMPULSE	UNIFORM	258				X
IMPULSE	NONUNIFORM	258				X
C_2H_7N						
REVIEW						
DC	UNIFORM	437				
		438				
C_2N_2						
EXPERIMENTAL						
DC	NONUNIFORM	283				
C_3F_5N						
EXPERIMENTAL						
DC	UNIFORM	114				
DC	NONUNIFORM	114				
REVIEW						
DC	UNIFORM	45				X
		150				
		280		X	X	
		435				
		436				
		437				
		438				
DC	NONUNIFORM	45				X
		150				
AC	UNIFORM	45				X
		150				
AC	NONUNIFORM	45				X
		150				
IMPULSE	UNIFORM	45				X
		150				
IMPULSE	NONUNIFORM	45				X
		150				
C_3F_6						
EXPERIMENTAL						
DC	UNIFORM	21				
REVIEW						
DC	UNIFORM	64				
		150				
		253				
DC	NONUNIFORM	150				
AC	UNIFORM	150				
AC	NONUNIFORM	150				
IMPULSE	UNIFORM	150				
IMPULSE	NONUNIFORM	150				

				PARTICLE	SURFACE	INTERFACE	CORONA
$c-C_3F_6$							
REVIEW							
	DC	UNIFORM	253				
$C_3F_6+SF_6$							
THEORETICAL							
	DC	UNIFORM	78				
$C_3F_6+SO_2$							
THEORETICAL							
	DC	UNIFORM	78				
C_3F_6O							
EXPERIMENTAL							
	DC	UNIFORM	114				
	DC	NONUNIFORM	114				
C_3F_8							
EXPERIMENTAL							
	DC	UNIFORM	81				
			114				
			304				
			310				
	DC	NONUNIFORM	114				
	AC	UNIFORM	33				
			70				X
			72				X
			457				
	AC	NONUNIFORM	33				
			70				X
			72				X
			457				
			460				
	IMPULSE	UNIFORM	33				
			70				X
			72				X
	IMPULSE	NONUNIFORM	33				
			70				X
			72				X
			452				
THEORETICAL							
	DC	UNIFORM	65				
			103				
			165				
	DC	NONUNIFORM	103				
REVIEW							
	DC	UNIFORM	32				
			45				X
			64				
			65				
			73		X		
			150				
			165				
			253				

				PARTICLE	SURFACE	INTERFACE	CORONA
C_3F_8 (cont.)			258				X
			436				
			437				
			438				
	DC	NONUNIFORM	45				X
			73		X		
			150				
			258				X
	AC	UNIFORM	45				X
			70				X
			73		X		
			150				
	AC	NONUNIFORM	45				X
			70				X
			73		X		
			150				
	IMPULSE	UNIFORM	45				X
			70				X
			73		X		
			150				
			258				X
	IMPULSE	NONUNIFORM	45				X
			70				X
			73		X		
			150				
			258				X
c-C_3F_8							
EXPERIMENTAL							
	DC	UNIFORM	331				
	DC	NONUNIFORM	331				
REVIEW							
	DC	UNIFORM	331				
	DC	NONUNIFORM	331				
$C_3F_8+C_4F_6+N_2+SF_6$							
THEORETICAL							
	DC	UNIFORM	65				
REVIEW							
	DC	UNIFORM	65				
$C_3F_8+CO_2$							
THEORETICAL							
	DC	UNIFORM	65				
REVIEW							
	DC	UNIFORM	65				
$C_3F_8+CO_2+N_2$							
THEORETICAL							
	DC	UNIFORM	65				
REVIEW							
	DC	UNIFORM	65				

				PARTICLE	SURFACE	INTERFACE	CORONA
$C_3F_8+N_2$							
THEORETICAL							
DC	UNIFORM	65					
REVIEW							
DC	UNIFORM	65					
$C_3F_8+N_2+SF_6$							
THEORETICAL							
DC	UNIFORM	65					
REVIEW							
DC	UNIFORM	65					
C_3F_9N							
REVIEW							
DC	UNIFORM	253					
$C_3H_3F_3$							
REVIEW							
DC	UNIFORM	64					
C_3H_3I							
REVIEW							
DC	UNIFORM	285			X	X	X
DC	NONUNIFORM	285			X	X	X
AC	UNIFORM	285			X	X	X
AC	NONUNIFORM	285			X	X	X
IMPULSE	UNIFORM	285			X	X	X
IMPULSE	NONUNIFORM	285			X	X	X
C_3H_4							
REVIEW							
DC	UNIFORM	253					
C_3H_6							
EXPERIMENTAL							
DC	UNIFORM	104					
		195					
		200					
		201					
		202					
DC	NONUNIFORM	104					
REVIEW							
DC	UNIFORM	45					X
		253					
		258					X
DC	NONUNIFORM	45					X
		258					X
AC	UNIFORM	45					X
AC	NONUNIFORM	45					X
IMPULSE	UNIFORM	45					X
		258					X
IMPULSE	NONUNIFORM	45					X
		258					X

				PARTICLE	SURFACE	INTERFACE	CORONA
c-C_3H_6							
EXPERIMENTAL							
DC	UNIFORM	104					
DC	NONUNIFORM	104					
REVIEW							
DC	UNIFORM	253					
C_3H_6+Kr							
EXPERIMENTAL							
DC	UNIFORM	200					
REVIEW							
DC	UNIFORM	45					X
DC	NONUNIFORM	45					X
AC	UNIFORM	45					X
AC	NONUNIFORM	45					X
IMPULSE	UNIFORM	45					X
IMPULSE	NONUNIFORM	45					X
C_3H_7Cl							
REVIEW							
DC	UNIFORM	285			X	X	X
DC	NONUNIFORM	285			X	X	X
AC	UNIFORM	285			X	X	X
AC	NONUNIFORM	285			X	X	X
IMPULSE	UNIFORM	285			X	X	X
IMPULSE	NONUNIFORM	285			X	X	X
C_3H_8							
EXPERIMENTAL							
DC	UNIFORM	114					
		115					
		196					
		201					
		202					
DC	NONUNIFORM	114					
		115					
n-C_3H_8							
REVIEW							
DC	UNIFORM	258					X
DC	NONUNIFORM	258					X
IMPULSE	UNIFORM	258					X
IMPULSE	NONUNIFORM	258					X
C_4F_{10}							
EXPERIMENTAL							
DC	UNIFORM	114					
		310					
		366					
DC	NONUNIFORM	114					
AC	UNIFORM	33					
		72					X
		457					
AC	NONUNIFORM	33					

			PARTICLE	SURFACE	INTERFACE	CORONA
C_4F_{10} (cont.)		72				X
		457				
		460				
IMPULSE	UNIFORM	33				
		72				X
IMPULSE	NONUNIFORM	33				
		72				X
REVIEW						
DC	UNIFORM	45				X
		73		X		
		150				
		258				X
		436				
		437				
		438				
DC	NONUNIFORM	45				X
		73		X		
		150				
		258				X
AC	UNIFORM	45				X
		73		X		
		150				
AC	NONUNIFORM	45				X
		73		X		
		150				
IMPULSE	UNIFORM	45				X
		73		X		
		150				
		258				X
IMPULSE	NONUNIFORM	45				X
		73		X		
		150				
		258				X
$C_4F_{10}+N_2$						
EXPERIMENTAL						
AC	UNIFORM	72				X
AC	NONUNIFORM	72				X
IMPULSE	UNIFORM	72				X
IMPULSE	NONUNIFORM	72				X
n-$C_4F_{10}+N_2$						
EXPERIMENTAL						
AC	UNIFORM	47				X
AC	NONUNIFORM	47				X
IMPULSE	UNIFORM	47				X
IMPULSE	NONUNIFORM	47				X
$C_4F_{10}O$						
REVIEW						
DC	UNIFORM	73		X		
DC	NONUNIFORM	73		X		
AC	UNIFORM	73		X		
AC	NONUNIFORM	73		X		

				PARTICLE	SURFACE	INTERFACE	CORONA
$C_4F_{10}O$ (cont.)							
	IMPULSE	UNIFORM	73		X		
	IMPULSE	NONUNIFORM	73		X		
C_4F_2							
EXPERIMENTAL							
	DC	UNIFORM	114				
	DC	NONUNIFORM	114				
C_4F_4							
REVIEW							
	DC	UNIFORM	438				
C_4F_6							
EXPERIMENTAL							
	DC	UNIFORM	114				
			330				
	DC	NONUNIFORM	114				
THEORETICAL							
	DC	UNIFORM	65				
			165				
			167				
REVIEW							
	DC	UNIFORM	45				X
			64				
			65				
			150				
			165				
			253				
			270	X	X		
			438				
	DC	NONUNIFORM	45				X
			150				
			270	X	X		
	AC	UNIFORM	45				X
			150				
	AC	NONUNIFORM	45				X
			150				
	IMPULSE	UNIFORM	45				X
			150				
			270	X	X		
	IMPULSE	NONUNIFORM	45				X
			150				
			270	X	X		
1,3-C_4F_6							
EXPERIMENTAL							
	DC	UNIFORM	331				
	DC	NONUNIFORM	331				
REVIEW							
	DC	UNIFORM	331				
	DC	NONUNIFORM	331				

				PARTICLE	SURFACE	INTERFACE	CORONA
2-C_4F_6							
EXPERIMENTAL							
	DC	UNIFORM	331				
	DC	NONUNIFORM	331				
REVIEW							
	DC	UNIFORM	331				
	DC	NONUNIFORM	331				
c-C_4F_6							
EXPERIMENTAL							
	DC	UNIFORM	331				
	DC	NONUNIFORM	331				
REVIEW							
	DC	UNIFORM	270 331	X	X		
	DC	NONUNIFORM	270 331	X	X		
	IMPULSE	UNIFORM	270	X	X		
	IMPULSE	NONUNIFORM	270	X	X		
2-C_4F_6+CH_2F_2							
EXPERIMENTAL							
	DC	UNIFORM	83				
2-C_4F_6+CHF_3							
EXPERIMENTAL							
	DC	UNIFORM	83				
C_4F_6+CO_2							
THEORETICAL							
	DC	UNIFORM	65				
REVIEW							
	DC	UNIFORM	65				
C_4F_6+CO_2+N_2							
THEORETICAL							
	DC	UNIFORM	65				
REVIEW							
	DC	UNIFORM	65				
C_4F_6+N_2							
THEORETICAL							
	DC	UNIFORM	65				
REVIEW							
	DC	UNIFORM	65				
C_4F_6+N_2+SF_6							
EXPERIMENTAL							
	DC	UNIFORM	330				
THEORETICAL							
	DC	UNIFORM	65				
REVIEW							
	DC	UNIFORM	65				

				PARTICLE	SURFACE	INTERFACE	CORONA
$C_4F_6+SF_6$							
THEORETICAL							
	DC	UNIFORM	65				
			167				
REVIEW							
	DC	UNIFORM	65				
C_4F_7N							
EXPERIMENTAL							
	DC	UNIFORM	114				
	DC	NONUNIFORM	114				
REVIEW							
	DC	UNIFORM	45				X
			150				
			435				
			436				
			437				
			438				
	DC	NONUNIFORM	45				X
			150				
	AC	UNIFORM	45				X
			150				
	AC	NONUNIFORM	45				X
			150				
	IMPULSE	UNIFORM	45				X
			150				
	IMPULSE	NONUNIFORM	45				X
			150				
C_4F_8							
EXPERIMENTAL							
	DC	UNIFORM	330				
	AC	UNIFORM	72				X
			392				
	AC	NONUNIFORM	72				X
	IMPULSE	UNIFORM	72				X
	IMPULSE	NONUNIFORM	72				X
REVIEW							
	DC	UNIFORM	45				X
			150				
			270	X	X		
			436				
			437				
			438				
	DC	NONUNIFORM	45				X
			150				
			270	X	X		
	AC	UNIFORM	45				X
			150				
	AC	NONUNIFORM	45				X
			150				
	IMPULSE	UNIFORM	45				X
			150				

			PARTICLE	SURFACE	INTERFACE	CORONA
C_4F_8 (cont.)		270	X	X		
IMPULSE	NONUNIFORM	45				X
		150				
		270	X	X		
2-C_4F_8						
EXPERIMENTAL						
DC	UNIFORM	331				
DC	NONUNIFORM	331				
REVIEW						
DC	UNIFORM	331				
DC	NONUNIFORM	331				
c-C_4F_8						
EXPERIMENTAL						
DC	UNIFORM	83				
		114				
		311				
		330				
		331				
DC	NONUNIFORM	114				
		331				
AC	UNIFORM	47				X
AC	NONUNIFORM	47				X
IMPULSE	UNIFORM	47				X
		139				
IMPULSE	NONUNIFORM	47				X
THEORETICAL						
DC	UNIFORM	65				
		165				
		167				
REVIEW						
DC	UNIFORM	64				
		65				
		150				
		165				
		253				
		258				X
		270	X	X		
		331				
DC	NONUNIFORM	150				
		258				X
		270	X	X		
		331				
AC	UNIFORM	150				
AC	NONUNIFORM	150				
IMPULSE	UNIFORM	150				
		258				X
		270	X	X		
IMPULSE	NONUNIFORM	150				
		258				X
		270	X	X		

iso-C_4F_8

EXPERIMENTAL		
DC	UNIFORM	311
REVIEW		
DC	UNIFORM	150
DC	NONUNIFORM	150
AC	UNIFORM	150
AC	NONUNIFORM	150
IMPULSE	UNIFORM	150
IMPULSE	NONUNIFORM	150

c-C_4F_8+1,1,1-$C_2H_3F_3$

EXPERIMENTAL		
DC	UNIFORM	83
		85
DC	NONUNIFORM	85
THEORETICAL		
DC	UNIFORM	317

c-C_4F_8+1-C_3F_6

EXPERIMENTAL		
DC	UNIFORM	83

c-C_4F_8+C_2H_3N

EXPERIMENTAL		
DC	UNIFORM	83

c-C_4F_8+C_4F_6+N_2+SF_6

EXPERIMENTAL		
DC	UNIFORM	330

c-C_4F_8+CF_4

EXPERIMENTAL		
DC	UNIFORM	83
THEORETICAL		
DC	UNIFORM	317

2-C_4F_8+CHF_3

EXPERIMENTAL		
DC	UNIFORM	85
DC	NONUNIFORM	85

c-C_4F_8+CHF_3

EXPERIMENTAL		
DC	UNIFORM	83
		85
DC	NONUNIFORM	85
THEORETICAL		
DC	UNIFORM	317

c-C_4F_8+CO

EXPERIMENTAL		
AC	NONUNIFORM	363
IMPULSE	NONUNIFORM	363

			PARTICLE	SURFACE	INTERFACE	CORONA
$c-C_4F_8+CO+SF_6$						
EXPERIMENTAL						
AC	NONUNIFORM	363				
IMPULSE	NONUNIFORM	363				
$c-C_4F_8+CO_2$						
THEORETICAL						
DC	UNIFORM	65				
REVIEW						
DC	UNIFORM	65				
$c-C_4F_8+CO_2+N_2$						
THEORETICAL						
DC	UNIFORM	65				
REVIEW						
DC	UNIFORM	65				
$2-C_4F_8+N_2$						
EXPERIMENTAL						
DC	UNIFORM	85				
DC	NONUNIFORM	85				
THEORETICAL						
DC	UNIFORM	317				
$c-C_4F_8+N_2$						
EXPERIMENTAL						
DC	UNIFORM	85				
DC	NONUNIFORM	85				
AC	UNIFORM	47				X
AC	NONUNIFORM	47				X
IMPULSE	UNIFORM	47				X
IMPULSE	NONUNIFORM	47				X
THEORETICAL						
DC	UNIFORM	65 317				
REVIEW						
DC	UNIFORM	65				
$c-C_4F_8+N_2+SF_6$						
EXPERIMENTAL						
AC	NONUNIFORM	363				
IMPULSE	NONUNIFORM	363				
$C_4F_8+SF_6$						
REVIEW						
DC	UNIFORM	150				
DC	NONUNIFORM	150				
AC	UNIFORM	150				
AC	NONUNIFORM	150				
IMPULSE	UNIFORM	150				
IMPULSE	NONUNIFORM	150				

				PARTICLE	SURFACE	INTERFACE	CORONA
c-C_4F_8+SF_6							
THEORETICAL							
	DC	UNIFORM	167				
c-C_4F_8O							
REVIEW							
	DC	UNIFORM	73		X		
	DC	NONUNIFORM	73		X		
	AC	UNIFORM	73		X		
	AC	NONUNIFORM	73		X		
	IMPULSE	UNIFORM	73		X		
	IMPULSE	NONUNIFORM	73		X		
C_4H_{10}							
EXPERIMENTAL							
	DC	UNIFORM	115				
	DC	NONUNIFORM	115				
2-C_4H_{10}							
EXPERIMENTAL							
	DC	UNIFORM	115				
	DC	NONUNIFORM	115				
iso-C_4H_{10}							
EXPERIMENTAL							
	DC	UNIFORM	201				
			202				
n-C_4H_{10}							
EXPERIMENTAL							
	DC	UNIFORM	201				
			202				
REVIEW							
	DC	UNIFORM	258				X
	DC	NONUNIFORM	258				X
	IMPULSE	UNIFORM	258				X
	IMPULSE	NONUNIFORM	258				X
$C_4H_{10}O$							
EXPERIMENTAL							
	DC	UNIFORM	372				
C_4H_4							
EXPERIMENTAL							
	DC	UNIFORM	195				
C_4H_6							
REVIEW							
	DC	UNIFORM	258				X
	DC	NONUNIFORM	258				X
	IMPULSE	UNIFORM	258				X
	IMPULSE	NONUNIFORM	258				X

				PARTICLE	SURFACE	INTERFACE	CORONA
1,3-C_4H_6							
EXPERIMENTAL							
	DC	UNIFORM	104				
			195				
			201				
			202				
	DC	NONUNIFORM	104				
C_4H_8							
EXPERIMENTAL							
	DC	UNIFORM	104				
			199				
	DC	NONUNIFORM	104				
REVIEW							
	DC	UNIFORM	258				X
	DC	NONUNIFORM	258				X
	IMPULSE	UNIFORM	258				X
	IMPULSE	NONUNIFORM	258				X
1-C_4H_8							
EXPERIMENTAL							
	DC	UNIFORM	104				
			195				
			201				
			202				
	DC	NONUNIFORM	104				
2-C_4H_8							
EXPERIMENTAL							
	DC	UNIFORM	104				
	DC	NONUNIFORM	104				
cis-C_4H_8							
EXPERIMENTAL							
	DC	UNIFORM	195				
iso-C_4H_8							
EXPERIMENTAL							
	DC	UNIFORM	195				
trans-C_4H_8							
EXPERIMENTAL							
	DC	UNIFORM	195				
C_4H_9Cl							
REVIEW							
	DC	UNIFORM	285		X	X	X
	DC	NONUNIFORM	285		X	X	X
	AC	UNIFORM	285		X	X	X
	AC	NONUNIFORM	285		X	X	X
	IMPULSE	UNIFORM	285		X	X	X
	IMPULSE	NONUNIFORM	285		X	X	X

				PARTICLE	SURFACE	INTERFACE	CORONA
C_5F_{10}							
REVIEW							
	DC	UNIFORM	45				X
			438				
	DC	NONUNIFORM	45				X
	AC	UNIFORM	45				X
	AC	NONUNIFORM	45				X
	IMPULSE	UNIFORM	45				X
	IMPULSE	NONUNIFORM	45				X
C_5F_{12}							
EXPERIMENTAL							
	DC	UNIFORM	114				
			315				
	DC	NONUNIFORM	114				
	AC	UNIFORM	33				
			457				
	AC	NONUNIFORM	33				
			457				
			460				
	IMPULSE	UNIFORM	33				
	IMPULSE	NONUNIFORM	33				
REVIEW							
	DC	UNIFORM	45				X
			73		X		
			150				
			258				X
			438				
	DC	NONUNIFORM	45				X
			73		X		
			150				
			258				X
	AC	UNIFORM	45				X
			73		X		
			150				
	AC	NONUNIFORM	45				X
			73		X		
			150				
	IMPULSE	UNIFORM	45				X
			73		X		
			150				
			258				X
	IMPULSE	NONUNIFORM	45				X
			73		X		
			150				
			258				X
C_5F_8							
REVIEW							
	DC	UNIFORM	45				X
			270	X	X		
			435				
			436				
			437				

			PARTICLE	SURFACE	INTERFACE	CORONA
C_5F_8 (cont.)		438				
DC	NONUNIFORM	45				X
		270	X	X		
AC	UNIFORM	45				X
AC	NONUNIFORM	45				X
IMPULSE	UNIFORM	45				X
		270	X	X		
IMPULSE	NONUNIFORM	45				X
		270	X	X		
c-C_5F_8						
EXPERIMENTAL						
DC	UNIFORM	331				
DC	NONUNIFORM	331				
REVIEW						
DC	UNIFORM	331				
DC	NONUNIFORM	331				
c-C_5F_8+CHF_3						
EXPERIMENTAL						
DC	UNIFORM	85				
DC	NONUNIFORM	85				
c-C_5F_8+N_2						
EXPERIMENTAL						
DC	UNIFORM	85				
DC	NONUNIFORM	85				
1-C_5H_{10}						
EXPERIMENTAL						
DC	UNIFORM	104				
DC	NONUNIFORM	104				
2-C_5H_{10}						
EXPERIMENTAL						
DC	UNIFORM	195				
c-C_5H_{10}						
EXPERIMENTAL						
DC	UNIFORM	115				
		202				
DC	NONUNIFORM	115				
$C_5H_{11}Cl$						
REVIEW						
DC	UNIFORM	285		X	X	X
DC	NONUNIFORM	285		X	X	X
AC	UNIFORM	285		X	X	X
AC	NONUNIFORM	285		X	X	X
IMPULSE	UNIFORM	285		X	X	X
IMPULSE	NONUNIFORM	285		X	X	X

				PARTICLE	SURFACE	INTERFACE	CORONA
C_5H_{12}							
EXPERIMENTAL							
	DC	UNIFORM	114				
			115				
			202				
	DC	NONUNIFORM	114				
			115				
$2\text{-}C_5H_{12}$							
EXPERIMENTAL							
	DC	UNIFORM	115				
	DC	NONUNIFORM	115				
$2,2\text{-}C_5H_{12}$							
EXPERIMENTAL							
	DC	UNIFORM	115				
	DC	NONUNIFORM	115				
$n\text{-}C_5H_{12}$							
EXPERIMENTAL							
	DC	UNIFORM	198				
			202				
			301				
C_5H_8							
EXPERIMENTAL							
	DC	UNIFORM	195				
$c\text{-}C_5H_8$							
EXPERIMENTAL							
	DC	UNIFORM	195				
C_6F_{10}							
REVIEW							
	DC	UNIFORM	270	X	X		
	DC	NONUNIFORM	270	X	X		
	IMPULSE	UNIFORM	270	X	X		
	IMPULSE	NONUNIFORM	270	X	X		
$c\text{-}C_6F_{10}$							
EXPERIMENTAL							
	DC	UNIFORM	331				
	DC	NONUNIFORM	331				
REVIEW							
	DC	UNIFORM	331				
	DC	NONUNIFORM	331				
$c\text{-}C_6F_{10}+CHF_3$							
EXPERIMENTAL							
	DC	UNIFORM	85				
	DC	NONUNIFORM	85				

			PARTICLE	SURFACE	INTERFACE	CORONA
c-C_6F_{10}+N_2						
EXPERIMENTAL						
DC	UNIFORM	85				
DC	NONUNIFORM	85				
C_6F_{12}						
REVIEW						
DC	UNIFORM	150				
		270	X	X		
DC	NONUNIFORM	150				
		270	X	X		
AC	UNIFORM	150				
AC	NONUNIFORM	150				
IMPULSE	UNIFORM	150				
		270	X	X		
IMPULSE	NONUNIFORM	150				
		270	X	X		
c-C_6F_{12}						
EXPERIMENTAL						
DC	UNIFORM	331				
DC	NONUNIFORM	331				
REVIEW						
DC	UNIFORM	64				
		331				
DC	NONUNIFORM	331				
C_6F_{14}						
EXPERIMENTAL						
DC	UNIFORM	114				
		315				
DC	NONUNIFORM	114				
REVIEW						
DC	UNIFORM	45				X
		150				
		258				X
		438				
DC	NONUNIFORM	45				X
		150				
		258				X
AC	UNIFORM	45				X
		150				
AC	NONUNIFORM	45				X
		150				
IMPULSE	UNIFORM	45				X
		150				
		258				X
IMPULSE	NONUNIFORM	45				X
		150				
		258				X
$C_6F_{15}N$						
EXPERIMENTAL						
AC	UNIFORM	33				

				PARTICLE	SURFACE	INTERFACE	CORONA
$C_6F_{15}N$ (cont.)			70				X
AC	NONUNIFORM		33				
			70				X
IMPULSE	UNIFORM		33				
			70				X
IMPULSE	NONUNIFORM		33				
			70				X
REVIEW							
DC	UNIFORM		45				X
			438				
DC	NONUNIFORM		45				X
AC	UNIFORM		45				X
			70				X
AC	NONUNIFORM		45				X
			70				X
IMPULSE	UNIFORM		45				X
			70				X
IMPULSE	NONUNIFORM		45				X
			70				X
$1\text{-}C_6H_{12}$							
EXPERIMENTAL							
DC	UNIFORM		104				
			202				
DC	NONUNIFORM		104				
$c\text{-}C_6H_{12}$							
EXPERIMENTAL							
DC	UNIFORM		115				
			202				
DC	NONUNIFORM		115				
C_6H_{14}							
EXPERIMENTAL							
DC	UNIFORM		114				
			115				
DC	NONUNIFORM		114				
			115				
$2,2\text{-}C_6H_{14}$							
EXPERIMENTAL							
DC	UNIFORM		115				
DC	NONUNIFORM		115				
$n\text{-}C_6H_{14}$							
EXPERIMENTAL							
DC	UNIFORM		202				
			301				
IMPULSE	UNIFORM		398				
C_6H_5Cl							
REVIEW							
DC	UNIFORM		45				X
			438				

			PARTICLE	SURFACE	INTERFACE	CORONA
C_6H_5Cl (cont.)						
DC	NONUNIFORM	45				X
AC	UNIFORM	45				X
AC	NONUNIFORM	45				X
IMPULSE	UNIFORM	45				X
IMPULSE	NONUNIFORM	45				X
C_6H_6						
EXPERIMENTAL						
DC	UNIFORM	104 199				
DC	NONUNIFORM	104				
REVIEW						
DC	UNIFORM	280		X	X	
$C_7Cl_2F_6$						
REVIEW						
DC	UNIFORM	45 438				X
DC	NONUNIFORM	45				X
AC	UNIFORM	45				X
AC	NONUNIFORM	45				X
IMPULSE	UNIFORM	45				X
IMPULSE	NONUNIFORM	45				X
$C_7Cl_3F_5$						
REVIEW						
DC	UNIFORM	45 438				X
DC	NONUNIFORM	45				X
AC	UNIFORM	45				X
AC	NONUNIFORM	45				X
IMPULSE	UNIFORM	45				X
IMPULSE	NONUNIFORM	45				X
c-$C_7Cl_3F_5$						
EXPERIMENTAL						
AC	NONUNIFORM	460				
C_7ClF_7						
REVIEW						
DC	UNIFORM	45 438				X
DC	NONUNIFORM	45				X
AC	UNIFORM	45				X
AC	NONUNIFORM	45				X
IMPULSE	UNIFORM	45				X
IMPULSE	NONUNIFORM	45				X
c-C_7ClF_7						
EXPERIMENTAL						
AC	NONUNIFORM	460				

			PARTICLE	SURFACE	INTERFACE	CORONA
C_7F_{12}						
REVIEW						
DC	UNIFORM	438				
C_7F_{14}						
EXPERIMENTAL						
DC	UNIFORM	315				
AC	UNIFORM	70				X
AC	NONUNIFORM	70				X
IMPULSE	UNIFORM	70				X
IMPULSE	NONUNIFORM	70				X
REVIEW						
DC	UNIFORM	45				X
		150				
		270	X	X		
		438				
DC	NONUNIFORM	45				X
		150				
		270	X	X		
AC	UNIFORM	45				X
		70				X
		150				
AC	NONUNIFORM	45				X
		70				X
		150				
IMPULSE	UNIFORM	45				X
		70				X
		150				
		270	X	X		
IMPULSE	NONUNIFORM	45				X
		70				X
		150				
		270	X	X		
c-C_7F_{14}						
EXPERIMENTAL						
AC	UNIFORM	33				
AC	NONUNIFORM	33				
		460				
IMPULSE	UNIFORM	33				
IMPULSE	NONUNIFORM	33				
c-C_7F_{14}+N_2						
EXPERIMENTAL						
AC	UNIFORM	33				
AC	NONUNIFORM	33				
IMPULSE	UNIFORM	33				
IMPULSE	NONUNIFORM	33				
c-C_7F_{14}+SF_6						
EXPERIMENTAL						
AC	UNIFORM	33				
AC	NONUNIFORM	33				
IMPULSE	UNIFORM	33				

			PARTICLE	SURFACE	INTERFACE	CORONA
$c-C_7F_{14}+SF_6$						
IMPULSE	NONUNIFORM	33				
C_7F_{16}						
EXPERIMENTAL						
AC	UNIFORM	33				
		70				X
AC	NONUNIFORM	33				
		70				X
IMPULSE	UNIFORM	33				
		70				X
IMPULSE	NONUNIFORM	33				
		70				X
REVIEW						
DC	UNIFORM	45				X
		150				
		438				
DC	NONUNIFORM	45				X
		150				
AC	UNIFORM	45				X
		70				X
		150				
AC	NONUNIFORM	45				X
		70				X
		150				
IMPULSE	UNIFORM	45				X
		70				X
		150				
IMPULSE	NONUNIFORM	45				X
		70				X
		150				
C_7F_8						
EXPERIMENTAL						
DC	UNIFORM	331				
DC	NONUNIFORM	331				
AC	UNIFORM	70				X
AC	NONUNIFORM	70				X
IMPULSE	UNIFORM	70				X
IMPULSE	NONUNIFORM	70				X
REVIEW						
DC	UNIFORM	45				X
		150				
		270	X	X		
		331				
		438				
DC	NONUNIFORM	45				X
		150				
		270	X	X		
		331				
AC	UNIFORM	45				X
		70				X
		150				
AC	NONUNIFORM	45				X

			PARTICLE	SURFACE	INTERFACE	CORONA
C_7F_8 (cont.)		70				X
		150				
IMPULSE	UNIFORM	45				X
		70				X
		150				
		270	X	X		
IMPULSE	NONUNIFORM	45				X
		70				X
		150				
		270	X	X		
c-C_7F_8						
EXPERIMENTAL						
AC	UNIFORM	33				
AC	NONUNIFORM	33				
		460				
IMPULSE	UNIFORM	33				
IMPULSE	NONUNIFORM	33				
n-C_7H_{16}						
EXPERIMENTAL						
DC	UNIFORM	301				
$C_7H_3ClF_3$						
REVIEW						
DC	UNIFORM	45				X
DC	NONUNIFORM	45				X
AC	UNIFORM	45				X
AC	NONUNIFORM	45				X
IMPULSE	UNIFORM	45				X
IMPULSE	NONUNIFORM	45				X
$C_7H_4ClF_3$						
REVIEW						
DC	UNIFORM	45				X
		438				
DC	NONUNIFORM	45				X
AC	UNIFORM	45				X
AC	NONUNIFORM	45				X
IMPULSE	UNIFORM	45				X
IMPULSE	NONUNIFORM	45				X
c-$C_7H_4ClF_3$						
EXPERIMENTAL						
AC	NONUNIFORM	460				
C_8F_{16}						
EXPERIMENTAL						
DC	UNIFORM	315				
		331				
DC	NONUNIFORM	331				
AC	UNIFORM	70				X
AC	NONUNIFORM	70				X
IMPULSE	UNIFORM	70				X

			PARTICLE	SURFACE	INTERFACE	CORONA
C_8F_{16} (cont.)						
IMPULSE	NONUNIFORM	70				X
REVIEW						
DC	UNIFORM	45				X
		150				
		270	X	X		
		331				
		438				
DC	NONUNIFORM	45				X
		150				
		270	X	X		
		331				
AC	UNIFORM	45				X
		70				X
		150				
AC	NONUNIFORM	45				X
		70				X
		150				
IMPULSE	UNIFORM	45				X
		70				X
		150				
		270	X	X		
IMPULSE	NONUNIFORM	45				X
		70				X
		150				
		270	X	X		
c-C_8F_{16}						
EXPERIMENTAL						
AC	UNIFORM	33				
AC	NONUNIFORM	33				
		460				
IMPULSE	UNIFORM	33				
IMPULSE	NONUNIFORM	33				
$C_8F_{16}O$						
EXPERIMENTAL						
DC	UNIFORM	397				
DC	NONUNIFORM	397				
REVIEW						
DC	UNIFORM	150				
DC	NONUNIFORM	150				
AC	UNIFORM	150				
AC	NONUNIFORM	150				
IMPULSE	UNIFORM	150				
IMPULSE	NONUNIFORM	150				
c-$C_8F_{16}O$						
REVIEW						
DC	UNIFORM	32				
$C_8F_{16}O+SF_6$						
EXPERIMENTAL						
DC	UNIFORM	397				

				PARTICLE	SURFACE	INTERFACE	CORONA
$C_8F_{16}O+SF_6$ (cont.)							
	DC	NONUNIFORM	397				
$C_8F_{18}O$							
EXPERIMENTAL							
	AC	UNIFORM	33				
			70				X
	AC	NONUNIFORM	33				
			70				X
	IMPULSE	UNIFORM	33				
			70				X
	IMPULSE	NONUNIFORM	33				
			70				X
REVIEW							
	DC	UNIFORM	45				X
			438				
	DC	NONUNIFORM	45				X
	AC	UNIFORM	45				X
			70				X
	AC	NONUNIFORM	45				X
			70				X
	IMPULSE	UNIFORM	45				X
			70				X
	IMPULSE	NONUNIFORM	45				X
			70				X
n-C_8H_{18}							
EXPERIMENTAL							
	DC	UNIFORM	199				
			202				
			301				
c-$C_8H_3ClF_6$							
EXPERIMENTAL							
	AC	NONUNIFORM	460				
$CBrClF_2$							
EXPERIMENTAL							
	DC	UNIFORM	114				
			156				
	DC	NONUNIFORM	114				
THEORETICAL							
	DC	UNIFORM	65				
			156				
			165				
			167				
REVIEW							
	DC	UNIFORM	64				
			65				
			150				
			165				
			258				X
			438				
	DC	NONUNIFORM	150				

				PARTICLE	SURFACE	INTERFACE	CORONA
$CBrClF_2$ (cont.)			258				X
	AC	UNIFORM	150				
	AC	NONUNIFORM	150				
	IMPULSE	UNIFORM	150				
			258				X
	IMPULSE	NONUNIFORM	150				
			258				X
$CBrClF_2+N_2$							
EXPERIMENTAL							
	DC	UNIFORM	156				
THEORETICAL							
	DC	UNIFORM	65				
			156				
REVIEW							
	DC	UNIFORM	65				
$CBrClF_2+SF_6$							
EXPERIMENTAL							
	DC	UNIFORM	156				
THEORETICAL							
	DC	UNIFORM	65				
			156				
			167				
REVIEW							
	DC	UNIFORM	65				
$CBrF_3$							
EXPERIMENTAL							
	DC	UNIFORM	114				
	DC	NONUNIFORM	114				
			283				
	AC	UNIFORM	72				X
	AC	NONUNIFORM	72				X
	IMPULSE	UNIFORM	72				X
	IMPULSE	NONUNIFORM	72				X
REVIEW							
	DC	UNIFORM	64				
			73		X		
			150				
			253				
			258				X
			437				
			438				
	DC	NONUNIFORM	73		X		
			150				
			258				X
	AC	UNIFORM	73		X		
			150				
	AC	NONUNIFORM	73		X		
			150				
	IMPULSE	UNIFORM	73		X		
			150				
			258				X

				PARTICLE	SURFACE	INTERFACE	CORONA
$CBrF_3$ (cont.)							
	IMPULSE	NONUNIFORM	73		X		
			150				
			258				X
CCl_2F_2							
EXPERIMENTAL							
	DC	UNIFORM	76				
			88		X		
			114				
			151				
			203				
			206			X	X
			303				
			313				X
			373				
	DC	NONUNIFORM	114				
			141				X
			142				X
			206			X	X
			283				
			313				X
	AC	UNIFORM	206			X	X
			313				X
	AC	NONUNIFORM	206			X	X
			313				X
			460				
	IMPULSE	UNIFORM	139				
			206			X	X
			313				X
	IMPULSE	NONUNIFORM	206			X	X
			313				X
THEORETICAL							
	DC	UNIFORM	152				
			165				
			167				
			207				X
			373				
			419				
	DC	NONUNIFORM	207				X
REVIEW							
	DC	UNIFORM	45				X
			64				
			73		X		
			88		X		
			96	X	X	X	
			150				
			165				
			203				
			253				
			258				X
			280		X	X	
			285		X	X	X
			368				

			PARTICLE	SURFACE	INTERFACE	CORONA
CCl_2F_2 (cont.)		435				
		436				
		437				
		438				
DC	NONUNIFORM	45				X
		73		X		
		96	X	X	X	
		150				
		258				X
		285		X	X	X
AC	UNIFORM	45				X
		73		X		
		96	X	X	X	
		150				
		285		X	X	X
AC	NONUNIFORM	45				X
		73		X		
		96	X	X	X	
		150				
		285		X	X	X
IMPULSE	UNIFORM	45				X
		73		X		
		96	X	X	X	
		150				
		258				X
		285		X	X	X
IMPULSE	NONUNIFORM	45				X
		73		X		
		96	X	X	X	
		150				
		258				X
		285		X	X	X
$CCl_2F_2+CF_4$						
EXPERIMENTAL						
DC	UNIFORM	206			X	X
DC	NONUNIFORM	206			X	X
AC	UNIFORM	206			X	X
AC	NONUNIFORM	206			X	X
IMPULSE	UNIFORM	206			X	X
IMPULSE	NONUNIFORM	206			X	X
$CCl_2F_2+CO_2$						
THEORETICAL						
DC	UNIFORM	317				
$CCl_2F_2+N_2$						
EXPERIMENTAL						
DC	UNIFORM	88		X		
		206			X	X
		276				
		373				
		402				
		403				

			PARTICLE	SURFACE	INTERFACE	CORONA
$CCl_2F_2+N_2$ (cont.)						
DC	NONUNIFORM	142				X
		206			X	X
AC	UNIFORM	206			X	X
AC	NONUNIFORM	206			X	X
IMPULSE	UNIFORM	206			X	X
IMPULSE	NONUNIFORM	206			X	X
THEORETICAL						
DC	UNIFORM	317				
		373				
		419				
REVIEW						
DC	UNIFORM	88		X		
$CCl_2F_2+SF_6$						
EXPERIMENTAL						
DC	UNIFORM	206			X	X
DC	NONUNIFORM	206			X	X
AC	UNIFORM	206			X	X
AC	NONUNIFORM	206			X	X
IMPULSE	UNIFORM	206			X	X
IMPULSE	NONUNIFORM	206			X	X
THEORETICAL						
DC	UNIFORM	167				
CCl_3F						
EXPERIMENTAL						
DC	UNIFORM	88		X		
		114				
		203				
		206			X	X
DC	NONUNIFORM	114				
		206			X	X
		283				
AC	UNIFORM	206			X	X
AC	NONUNIFORM	206			X	X
		460				
IMPULSE	UNIFORM	206			X	X
IMPULSE	NONUNIFORM	206			X	X
REVIEW						
DC	UNIFORM	45				X
		64				
		73		X		
		88		X		
		150				
		203				
		258				X
		285		X	X	X
		437				
		438				
DC	NONUNIFORM	45				X
		73		X		
		150				
		258				X

				PARTICLE	SURFACE	INTERFACE	CORONA
CCl_3F (cont.)			285		X	X	X
	AC	UNIFORM	45				X
			73		X		
			150				
			285		X	X	X
	AC	NONUNIFORM	45				X
			73		X		
			150				
			285		X	X	X
	IMPULSE	UNIFORM	45				X
			73		X		
			150				
			258				X
			285		X	X	X
	IMPULSE	NONUNIFORM	45				X
			73		X		
			150				
			258				X
			285		X	X	X
CCl_4							
EXPERIMENTAL							
	DC	UNIFORM	88		X		
			114				
			203				
	DC	NONUNIFORM	114				
	AC	NONUNIFORM	460				
THEORETICAL							
	DC	UNIFORM	152				
REVIEW							
	DC	UNIFORM	45				X
			64				
			88		X		
			203				
			285		X	X	X
			436				
			437				
			438				
	DC	NONUNIFORM	45				X
			285		X	X	X
	AC	UNIFORM	45				X
			285		X	X	X
	AC	NONUNIFORM	45				X
			285		X	X	X
	IMPULSE	UNIFORM	45				X
			285		X	X	X
	IMPULSE	NONUNIFORM	45				X
			285		X	X	X
$CClF_3$							
EXPERIMENTAL							
	DC	UNIFORM	88		X		
			114				
			203				

				PARTICLE	SURFACE	INTERFACE	CORONA
$CClF_3$ (cont.)			206			X	X
	DC	NONUNIFORM	38			X	X
			114				
			206			X	X
			283				
	AC	UNIFORM	206			X	X
	AC	NONUNIFORM	206			X	X
			460				
	IMPULSE	UNIFORM	206			X	X
	IMPULSE	NONUNIFORM	206			X	X
REVIEW							
	DC	UNIFORM	45				X
			64				
			73		X		
			88		X		
			150				
			203				
			253				
			258				X
			436				
			437				
			438				
	DC	NONUNIFORM	45				X
			73		X		
			150				
			258				X
	AC	UNIFORM	45				X
			73		X		
			150				
	AC	NONUNIFORM	45				X
			73		X		
			150				
	IMPULSE	UNIFORM	45				X
			73		X		
			150				
			258				X
	IMPULSE	NONUNIFORM	45				X
			73		X		
			150				
			258				X
$CClF_3+N_2$							
EXPERIMENTAL							
	DC	UNIFORM	88		X		
REVIEW							
	DC	UNIFORM	88		X		
CD_4							
EXPERIMENTAL							
	DC	UNIFORM	84				
	DC	NONUNIFORM	84				

			PARTICLE	SURFACE	INTERFACE	CORONA
CF_3I						
EXPERIMENTAL						
DC	NONUNIFORM	283				
REVIEW						
DC	UNIFORM	45				X
		438				
DC	NONUNIFORM	45				X
AC	UNIFORM	45				X
AC	NONUNIFORM	45				X
IMPULSE	UNIFORM	45				X
IMPULSE	NONUNIFORM	45				X
CF_3NO						
EXPERIMENTAL						
DC	UNIFORM	114				
DC	NONUNIFORM	114				
REVIEW						
DC	UNIFORM	438				
CF_3NO_2						
REVIEW						
DC	UNIFORM	150				
		253				
DC	NONUNIFORM	150				
AC	UNIFORM	150				
AC	NONUNIFORM	150				
IMPULSE	UNIFORM	150				
IMPULSE	NONUNIFORM	150				
CF_4						
EXPERIMENTAL						
DC	UNIFORM	55				
		63				
		114				
		203				
		206			X	X
		252				
		310				
		401				
DC	NONUNIFORM	114				
		206			X	X
		283				
AC	UNIFORM	33				
		70				X
		72				X
		206			X	X
		392				
AC	NONUNIFORM	33				
		70				X
		72				X
		206			X	X
		460				
IMPULSE	UNIFORM	33				
		70				X

				PARTICLE	SURFACE	INTERFACE	CORONA
CF_4 (cont.)			72				X
			206			X	X
	IMPULSE	NONUNIFORM	33				
			70				X
			72				X
			206			X	X
THEORETICAL							
	DC	UNIFORM	55				
			207				X
	DC	NONUNIFORM	207				X
REVIEW							
	DC	UNIFORM	45				X
			64				
			73		X		
			203				
			253				
			258				X
			436				
			437				
			438				
	DC	NONUNIFORM	45				X
			73		X		
			258				X
	AC	UNIFORM	45				X
			70				X
			73		X		
	AC	NONUNIFORM	45				X
			70				X
			73		X		
	IMPULSE	UNIFORM	45				X
			70				X
			73		X		
			258				X
	IMPULSE	NONUNIFORM	45				X
			70				X
			73		X		
			258				X
CF_4+SF_6							
EXPERIMENTAL							
	DC	UNIFORM	83				
THEORETICAL							
	DC	UNIFORM	317				
CF_4SO_2							
REVIEW							
	DC	UNIFORM	253				
CF_5NS							
EXPERIMENTAL							
	DC	UNIFORM	114				
	DC	NONUNIFORM	114				
REVIEW							
	DC	UNIFORM	438				

				PARTICLE	SURFACE	INTERFACE	CORONA
CF_8S							
EXPERIMENTAL							
DC	UNIFORM	114					
		151					
		203					
DC	NONUNIFORM	114					
THEORETICAL							
DC	UNIFORM	152					
REVIEW							
DC	UNIFORM	150					
		203					
		253					
		280			X	X	
		285			X	X	X
		438					
DC	NONUNIFORM	150					
		285			X	X	X
AC	UNIFORM	150					
		285			X	X	X
AC	NONUNIFORM	150					
		285			X	X	X
IMPULSE	UNIFORM	150					
		285			X	X	X
IMPULSE	NONUNIFORM	150					
		285			X	X	X
CF_8SO							
REVIEW							
DC	UNIFORM	253					
CH_2Cl_2							
EXPERIMENTAL							
DC	UNIFORM	114					
DC	NONUNIFORM	114					
AC	NONUNIFORM	460					
REVIEW							
DC	UNIFORM	45					X
		64					
		258					X
		285			X	X	X
		438					
DC	NONUNIFORM	45					X
		258					X
		285			X	X	X
AC	UNIFORM	45					X
		285			X	X	X
AC	NONUNIFORM	45					X
		285			X	X	X
IMPULSE	UNIFORM	45					X
		258					X
		285			X	X	X
IMPULSE	NONUNIFORM	45					X
		258					X
		285			X	X	X

			PARTICLE	SURFACE	INTERFACE	CORONA
CH_2ClF						
EXPERIMENTAL						
DC	UNIFORM	88		X		
		114				
DC	NONUNIFORM	114				
AC	NONUNIFORM	460				
REVIEW						
DC	UNIFORM	45				X
		88		X		
		258				X
		437				
		438				
DC	NONUNIFORM	45				X
		258				X
AC	UNIFORM	45				X
AC	NONUNIFORM	45				X
IMPULSE	UNIFORM	45				X
		258				X
IMPULSE	NONUNIFORM	45				X
		258				X
CH_2F_2						
REVIEW						
DC	UNIFORM	45				X
		64				
		258				X
		438				
DC	NONUNIFORM	45				X
		258				X
AC	UNIFORM	45				X
AC	NONUNIFORM	45				X
IMPULSE	UNIFORM	45				X
		258				X
IMPULSE	NONUNIFORM	45				X
		258				X
$CH_2F_2+SF_6$						
EXPERIMENTAL						
DC	UNIFORM	83				
CH_3Br						
EXPERIMENTAL						
DC	UNIFORM	114				
DC	NONUNIFORM	114				
REVIEW						
DC	UNIFORM	64				
		258				X
		285		X	X	X
		438				
DC	NONUNIFORM	258				X
		285		X	X	X
AC	UNIFORM	285		X	X	X
AC	NONUNIFORM	285		X	X	X
IMPULSE	UNIFORM	258				X

				PARTICLE	SURFACE	INTERFACE	CORONA
CH_3Br (cont.)			285		X	X	X
	IMPULSE	NONUNIFORM	258				X
			285		X	X	X
CH_3Cl							
EXPERIMENTAL							
	DC	UNIFORM	88		X		
			114				
	DC	NONUNIFORM	114				
	AC	NONUNIFORM	460				
REVIEW							
	DC	UNIFORM	45				X
			64				
			88		X		
			258				X
			285		X	X	X
			438				
	DC	NONUNIFORM	45				X
			258				X
			285		X	X	X
	AC	UNIFORM	45				X
			285		X	X	X
	AC	NONUNIFORM	45				X
			285		X	X	X
	IMPULSE	UNIFORM	45				X
			258				X
			285		X	X	X
	IMPULSE	NONUNIFORM	45				X
			258				X
			285		X	X	X
CH_3F							
REVIEW							
	DC	UNIFORM	45				X
	DC	NONUNIFORM	45				X
	AC	UNIFORM	45				X
	AC	NONUNIFORM	45				X
	IMPULSE	UNIFORM	45				X
	IMPULSE	NONUNIFORM	45				X
CH_3I							
EXPERIMENTAL							
	DC	UNIFORM	114				
	DC	NONUNIFORM	114				
REVIEW							
	DC	UNIFORM	64				
			258				X
			285		X	X	X
			437				
			438				
	DC	NONUNIFORM	258				X
			285		X	X	X
	AC	UNIFORM	285		X	X	X
	AC	NONUNIFORM	285		X	X	X

				PARTICLE	SURFACE	INTERFACE	CORONA
CH_3I (cont.)							
	IMPULSE	UNIFORM	258				X
			285		X	X	X
	IMPULSE	NONUNIFORM	258				X
			285		X	X	X
CH_4							
EXPERIMENTAL							
	DC	UNIFORM	84				
			88		X		
			114				
			115				
			196				
			201				
			202				
	DC	NONUNIFORM	84				
			114				
			115				
			169				
	AC	NONUNIFORM	460				
REVIEW							
	DC	UNIFORM	45				X
			64				
			88		X		
			253				
			285		X	X	X
			437				
			438				
	DC	NONUNIFORM	45				X
			285		X	X	X
	AC	UNIFORM	45				X
			285		X	X	X
	AC	NONUNIFORM	45				X
			285		X	X	X
	IMPULSE	UNIFORM	45				X
			285		X	X	X
	IMPULSE	NONUNIFORM	45				X
			285		X	X	X
n-CH_4							
REVIEW							
	DC	UNIFORM	258				X
	DC	NONUNIFORM	258				X
	IMPULSE	UNIFORM	258				X
	IMPULSE	NONUNIFORM	258				X
CH_5N							
REVIEW							
	DC	UNIFORM	437				
			438				
$CHCl_2F$							
EXPERIMENTAL							
	DC	UNIFORM	88		X		

				PARTICLE	SURFACE	INTERFACE	CORONA
$CHCl_2F$ (cont.)			114				
			203				
			206			X	X
	DC	NONUNIFORM	114				
			206			X	X
	AC	UNIFORM	206			X	X
	AC	NONUNIFORM	206			X	X
			460				
	IMPULSE	UNIFORM	206			X	X
	IMPULSE	NONUNIFORM	206			X	X
REVIEW							
	DC	UNIFORM	45				X
			64				
			88		X		
			150				
			203				
			258				X
			437				
			438				
	DC	NONUNIFORM	45				X
			150				
			258				X
	AC	UNIFORM	45				X
			150				
	AC	NONUNIFORM	45				X
			150				
	IMPULSE	UNIFORM	45				X
			150				
			258				X
	IMPULSE	NONUNIFORM	45				X
			150				
			258				X
$CHCl_3$							
EXPERIMENTAL							
	DC	UNIFORM	88		X		
			114				
	DC	NONUNIFORM	114				
	AC	NONUNIFORM	460				
REVIEW							
	DC	UNIFORM	45				X
			64				
			88		X		
			150				
			258				X
			285		X	X	X
			437				
			438				
	DC	NONUNIFORM	45				X
			150				
			258				X
			285		X	X	X
	AC	UNIFORM	45				X
			150				

				PARTICLE	SURFACE	INTERFACE	CORONA
$CHCl_3$ (cont.)			285		X	X	X
	AC	NONUNIFORM	45				X
			150				
			285		X	X	X
	IMPULSE	UNIFORM	45				X
			150				
			258				X
			285		X	X	X
	IMPULSE	NONUNIFORM	45				X
			150				
			258				X
			285		X	X	X
$CHClF_2$							
EXPERIMENTAL							
	DC	UNIFORM	88		X		
			114				
			206			X	X
	DC	NONUNIFORM	114				
			206			X	X
	AC	UNIFORM	206			X	X
	AC	NONUNIFORM	206			X	X
			460				
	IMPULSE	UNIFORM	206			X	X
	IMPULSE	NONUNIFORM	206			X	X
REVIEW							
	DC	UNIFORM	45				X
			64				
			73		X		
			88		X		
			150				
			253				
			258				X
			437				
			438				
	DC	NONUNIFORM	45				X
			73		X		
			150				
			258				X
	AC	UNIFORM	45				X
			73		X		
			150				
	AC	NONUNIFORM	45				X
			73		X		
			150				
	IMPULSE	UNIFORM	45				X
			73		X		
			150				
			258				X
	IMPULSE	NONUNIFORM	45				X
			73		X		
			150				
			258				X

				PARTICLE	SURFACE	INTERFACE	CORONA
CHF_3							
EXPERIMENTAL							
	DC	UNIFORM	88		X		
			114				
			206			X	X
	DC	NONUNIFORM	114				
			206			X	X
	AC	UNIFORM	206			X	X
	AC	NONUNIFORM	206			X	X
	IMPULSE	UNIFORM	206			X	X
	IMPULSE	NONUNIFORM	206			X	X
REVIEW							
	DC	UNIFORM	45				X
			64				
			73		X		
			88		X		
			150				
			258				X
			438				
	DC	NONUNIFORM	45				X
			73		X		
			150				
			258				X
	AC	UNIFORM	45				X
			73		X		
			150				
	AC	NONUNIFORM	45				X
			73		X		
			150				
	IMPULSE	UNIFORM	45				X
			73		X		
			150				
			258				X
	IMPULSE	NONUNIFORM	45				X
			73		X		
			150				
			258				X
CHF_3+SF_6							
EXPERIMENTAL							
	DC	UNIFORM	83				
			85				
	DC	NONUNIFORM	85				
THEORETICAL							
	DC	UNIFORM	317				
CO							
EXPERIMENTAL							
	DC	UNIFORM	112				
	DC	NONUNIFORM	169				
	AC	NONUNIFORM	363				
	IMPULSE	NONUNIFORM	363				
THEORETICAL							
	DC	UNIFORM	342				

			PARTICLE	SURFACE	INTERFACE	CORONA
CO (cont.)		343				
REVIEW						
DC	UNIFORM	45				X
		64				
		285		X	X	X
		437				
		438				
DC	NONUNIFORM	45				X
		285		X	X	X
AC	UNIFORM	45				X
		285		X	X	X
AC	NONUNIFORM	45				X
		285		X	X	X
IMPULSE	UNIFORM	45				X
		285		X	X	X
IMPULSE	NONUNIFORM	45				X
		285		X	X	X
$CO+SF_6$						
EXPERIMENTAL						
AC	NONUNIFORM	363				
IMPULSE	NONUNIFORM	363				
CO_2						
EXPERIMENTAL						
DC	UNIFORM	40				
		88		X		
		89				
		111				
		273				
		326				
		353				
		373				
		389				
		390				
DC	NONUNIFORM	107				X
		169				
		326				
		462		X		
AC	UNIFORM	326				
		351				
AC	NONUNIFORM	326				
		351				
IMPULSE	NONUNIFORM	25				
		382				X
THEORETICAL						
DC	UNIFORM	65				
		78				
		273				
		342				
		343				
		373				
		374				

			PARTICLE	SURFACE	INTERFACE	CORONA
CO_2 (cont.)						
REVIEW						
DC	UNIFORM	45				X
		64				
		65				
		66		X		X
		88		X		
		92	X	X	X	
		96	X	X	X	
		119		X		
		150				
		244		X		X
		253				
		270	X	X		
		285		X	X	X
		334		X		X
		368				
		437				
		438				
DC	NONUNIFORM	45				X
		66		X		X
		96	X	X	X	
		150				
		244		X		X
		270	X	X		
		285		X	X	X
		334		X		X
AC	UNIFORM	45				X
		66		X		X
		96	X	X	X	
		150				
		285		X	X	X
AC	NONUNIFORM	45				X
		66		X		X
		96	X	X	X	
		150				
		285		X	X	X
IMPULSE	UNIFORM	45				X
		92	X	X	X	
		96	X	X	X	
		150				
		244		X		X
		270	X	X		
		285		X	X	X
IMPULSE	NONUNIFORM	45				X
		96	X	X	X	
		150				
		244		X		X
		270	X	X		
		285		X	X	X
CO_2+He+N_2						
EXPERIMENTAL						
DC	UNIFORM	111				

				PARTICLE	SURFACE	INTERFACE	CORONA
CO_2+N_2							
EXPERIMENTAL							
	DC	UNIFORM	88		X		
REVIEW							
	DC	UNIFORM	88		X		
			96	X	X	X	
			285		X	X	X
	DC	NONUNIFORM	96	X	X	X	
			285		X	X	X
	AC	UNIFORM	96	X	X	X	
			285		X	X	X
	AC	NONUNIFORM	96	X	X	X	
			285		X	X	X
	IMPULSE	UNIFORM	96	X	X	X	
			285		X	X	X
	IMPULSE	NONUNIFORM	96	X	X	X	
			285		X	X	X
$CO_2+N_2+SF_6$							
THEORETICAL							
	DC	UNIFORM	65				
REVIEW							
	DC	UNIFORM	65				
CO_2+Ne							
EXPERIMENTAL							
	DC	NONUNIFORM	107				X
CO_2+SF_6							
EXPERIMENTAL							
	DC	UNIFORM	254				
			273				
	DC	NONUNIFORM	254				
			274				X
	AC	UNIFORM	351				
	AC	NONUNIFORM	351				
	IMPULSE	NONUNIFORM	382				X
THEORETICAL							
	DC	UNIFORM	273				
			316				X
			317				
	DC	NONUNIFORM	316				X
REVIEW							
	DC	UNIFORM	270	X	X		
	DC	NONUNIFORM	270	X	X		
	IMPULSE	UNIFORM	270	X	X		
	IMPULSE	NONUNIFORM	270	X	X		
CS_2							
REVIEW							
	DC	UNIFORM	285		X	X	X
	DC	NONUNIFORM	285		X	X	X
	AC	UNIFORM	285		X	X	X
	AC	NONUNIFORM	285		X	X	X

			PARTICLE	SURFACE	INTERFACE	CORONA
CS_2 (cont.)						
IMPULSE	UNIFORM	285		X	X	X
IMPULSE	NONUNIFORM	285		X	X	X
CSO						
REVIEW						
DC	UNIFORM	64				
		253				
Cl_2						
EXPERIMENTAL						
DC	UNIFORM	62				
		373				
DC	NONUNIFORM	283				
THEORETICAL						
DC	UNIFORM	373				
REVIEW						
DC	UNIFORM	285		X	X	X
		437				
		438				
DC	NONUNIFORM	285		X	X	X
AC	UNIFORM	285		X	X	X
AC	NONUNIFORM	285		X	X	X
IMPULSE	UNIFORM	285		X	X	X
IMPULSE	NONUNIFORM	285		X	X	X
Cl_2S_2						
REVIEW						
DC	UNIFORM	437				
		438				
ClF_5S						
REVIEW						
DC	UNIFORM	253				
$ClFO_3$						
EXPERIMENTAL						
DC	UNIFORM	203				
REVIEW						
DC	UNIFORM	45				X
		203				
		437				
		438				
DC	NONUNIFORM	45				X
AC	UNIFORM	45				X
AC	NONUNIFORM	45				X
IMPULSE	UNIFORM	45				X
IMPULSE	NONUNIFORM	45				X
Cs+He						
EXPERIMENTAL						
DC	UNIFORM	127				

				PARTICLE	SURFACE	INTERFACE	CORONA
D_2							
EXPERIMENTAL							
	DC	UNIFORM	84				
	DC	NONUNIFORM	84				
			282		X		
F_2SO							
REVIEW							
	DC	UNIFORM	150				
			253				
			285		X	X	X
			437				
			438				
	DC	NONUNIFORM	150				
			285		X	X	X
	AC	UNIFORM	150				
			285		X	X	X
	AC	NONUNIFORM	150				
			285		X	X	X
	IMPULSE	UNIFORM	150				
			285		X	X	X
	IMPULSE	NONUNIFORM	150				
			285		X	X	X
F_2SO_2							
REVIEW							
	DC	UNIFORM	253				
F_7NS							
REVIEW							
	DC	UNIFORM	253				
H_2							
EXPERIMENTAL							
	DC	UNIFORM	4				
			56				
			84				
			108		X		
			109		X		
			148				
			151				
			262		X		
			266				
			308		X		
			389				
			390				
	DC	NONUNIFORM	56				
			84				
			169				
			266				
			282		X		
			283				
	AC	NONUNIFORM	87				
			99				X

			PARTICLE	SURFACE	INTERFACE	CORONA
H_2 (cont.)						
IMPULSE	UNIFORM	148				
IMPULSE	NONUNIFORM	135				X
		136				
THEORETICAL						
DC	UNIFORM	163				
		190				
		343				
		374				
DC	NONUNIFORM	163				
REVIEW						
DC	UNIFORM	45				X
		64				
		66		X		X
		96	X	X	X	
		119		X		
		148				
		163				
		244		X		X
		253				
		260		X		
		261		X		
		264				X
		280		X	X	
		285		X	X	X
		334		X		X
		435				
		436				
		437				
		438				
DC	NONUNIFORM	45				X
		66		X		X
		96	X	X	X	
		163				
		244		X		X
		260		X		
		264				X
		285		X	X	X
		334		X		X
AC	UNIFORM	45				X
		66		X		X
		96	X	X	X	
		285		X	X	X
AC	NONUNIFORM	45				X
		66		X		X
		96	X	X	X	
		285		X	X	X
IMPULSE	UNIFORM	45				X
		96	X	X	X	
		148				
		244		X		X
		285		X	X	X
IMPULSE	NONUNIFORM	45				X
		96	X	X	X	

				PARTICLE	SURFACE	INTERFACE	CORONA
H_2 (cont.)			244		X		X
			285		X	X	X
H_2+He							
EXPERIMENTAL							
	DC	UNIFORM	77				
H_2+Ne							
EXPERIMENTAL							
	DC	UNIFORM	77				
H_2+O_2							
REVIEW							
	DC	UNIFORM	264				X
	DC	NONUNIFORM	264				X
H_2+SF_6							
EXPERIMENTAL							
	AC	NONUNIFORM	99				X
	IMPULSE	NONUNIFORM	135				X
			136				
H_2O							
EXPERIMENTAL							
	DC	UNIFORM	171		X		
			172				
			361				
	DC	NONUNIFORM	162				X
H_2S							
REVIEW							
	DC	UNIFORM	244		X		X
			285		X	X	X
	DC	NONUNIFORM	244		X		X
			285		X	X	X
	AC	UNIFORM	285		X	X	X
	AC	NONUNIFORM	285		X	X	X
	IMPULSE	UNIFORM	244		X		X
			285		X	X	X
	IMPULSE	NONUNIFORM	244		X		X
			285		X	X	X
HBr							
REVIEW							
	DC	UNIFORM	285		X	X	X
	DC	NONUNIFORM	285		X	X	X
	AC	UNIFORM	285		X	X	X
	AC	NONUNIFORM	285		X	X	X
	IMPULSE	UNIFORM	285		X	X	X
	IMPULSE	NONUNIFORM	285		X	X	X
HCl							
REVIEW							
	DC	UNIFORM	285		X	X	X

			PARTICLE	SURFACE	INTERFACE	CORONA
HCl (cont.)						
DC	NONUNIFORM	285		X	X	X
AC	UNIFORM	285		X	X	X
AC	NONUNIFORM	285		X	X	X
IMPULSE	UNIFORM	285		X	X	X
IMPULSE	NONUNIFORM	285		X	X	X
HI						
REVIEW						
DC	UNIFORM	285		X	X	X
DC	NONUNIFORM	285		X	X	X
AC	UNIFORM	285		X	X	X
AC	NONUNIFORM	285		X	X	X
IMPULSE	UNIFORM	285		X	X	X
IMPULSE	NONUNIFORM	285		X	X	X
He						
EXPERIMENTAL						
DC	UNIFORM	4				
		80		X		
		125		X		
		154				
		164				
		242				
		284				
		326				
		389				
		390				
		400				
		451				
DC	NONUNIFORM	164				
		170		X		X
		326				
AC	UNIFORM	326				
		351				
AC	NONUNIFORM	87				
		134				
		326				
		351				
		423				
IMPULSE	UNIFORM	51		X		
		139				
		456				
IMPULSE	NONUNIFORM	52		X		
THEORETICAL						
DC	UNIFORM	163				
DC	NONUNIFORM	163				
IMPULSE	UNIFORM	51		X		
IMPULSE	NONUNIFORM	52		X		
REVIEW						
DC	UNIFORM	45				X
		66		X		X
		92	X	X	X	
		119		X		

				PARTICLE	SURFACE	INTERFACE	CORONA
He (cont.)			163				
			244		X		X
			253				
			260		X		
			264				X
			280		X	X	
			285		X	X	X
			436				
			437				
			438				
	DC	NONUNIFORM	45				X
			66		X		X
			163				
			244		X		X
			260		X		
			264				X
			285		X	X	X
	AC	UNIFORM	45				X
			66		X		X
			285		X	X	X
	AC	NONUNIFORM	45				X
			66		X		X
			285		X	X	X
	IMPULSE	UNIFORM	45				X
			92	X	X	X	
			244		X		X
			285		X	X	X
	IMPULSE	NONUNIFORM	45				X
			244		X		X
			285		X	X	X
He+K							
EXPERIMENTAL							
	DC	UNIFORM	127				
He+N_2							
EXPERIMENTAL							
	AC	UNIFORM	351				
	AC	NONUNIFORM	351				
He+Ne							
EXPERIMENTAL							
	DC	UNIFORM	125		X		
			451				
He+O_2							
REVIEW							
	DC	UNIFORM	285		X	X	X
	DC	NONUNIFORM	285		X	X	X
	AC	UNIFORM	285		X	X	X
	AC	NONUNIFORM	285		X	X	X
	IMPULSE	UNIFORM	285		X	X	X
	IMPULSE	NONUNIFORM	285		X	X	X

				PARTICLE	SURFACE	INTERFACE	CORONA
He+SF$_6$							
EXPERIMENTAL							
	DC	UNIFORM	400				
	AC	NONUNIFORM	87				
THEORETICAL							
	DC	UNIFORM	78				
			236				
REVIEW							
	DC	UNIFORM	45				X
	DC	NONUNIFORM	45				X
	AC	UNIFORM	45				X
	AC	NONUNIFORM	45				X
	IMPULSE	UNIFORM	45				X
	IMPULSE	NONUNIFORM	45				X
Hg							
EXPERIMENTAL							
	DC	UNIFORM	4				
			390				
REVIEW							
	DC	UNIFORM	119		X		
			260		X		
			334		X		X
	DC	NONUNIFORM	260		X		
			334		X		X
Hg+Ne							
EXPERIMENTAL							
	DC	UNIFORM	344		X		
K+Ne							
EXPERIMENTAL							
	DC	UNIFORM	127				
Kr							
EXPERIMENTAL							
	DC	UNIFORM	200				
			389				
			390				
	DC	NONUNIFORM	170		X		X
THEORETICAL							
	DC	UNIFORM	163				
	DC	NONUNIFORM	163				
REVIEW							
	DC	UNIFORM	45				X
			66		X		X
			163				
			260		X		
			261		X		
			285		X	X	X
			438				
	DC	NONUNIFORM	45				X
			66		X		X
			163				

			PARTICLE	SURFACE	INTERFACE	CORONA
Kr (cont.)		260		X		
		285		X	X	X
AC	UNIFORM	45				X
		66		X		X
		285		X	X	X
AC	NONUNIFORM	45				X
		66		X		X
		285		X	X	X
IMPULSE	UNIFORM	45				X
		285		X	X	X
IMPULSE	NONUNIFORM	45				X
		285		X	X	X
N_2						
EXPERIMENTAL						
DC	UNIFORM	29				
		43		X		
		55				
		56				
		71				
		86		X		
		88		X		
		106				
		114				
		121				
		138				
		145				
		148				
		156				
		161				
		164				
		201				
		206			X	X
		218				
		223				
		225				
		266				
		273				
		299				
		308		X		
		326				
		330				
		353				
		377	X			
		389				
		390				
		450				
DC	NONUNIFORM	34				X
		38			X	X
		44				
		56				
		71				
		94	X			
		95	X		X	

				PARTICLE	SURFACE	INTERFACE	CORONA
N_2 (cont.)			107				X
			114				
			141				X
			142				X
			164				
			169				
			206			X	X
			266				
			275				
			283				
			298				X
			309				
			325				
			326				
			332			X	
			377	X			
			459				X
	AC	UNIFORM	33				
			70				X
			71				
			130				
			137		X		
			206			X	X
			326				
			351				
			377	X			
			457				
	AC	NONUNIFORM	33				
			34				X
			44				
			70				X
			71				
			94	X			
			95	X		X	
			206			X	X
			323				X
			325				
			326				
			336	X			
			351				
			363				
			377	X			
			453				
			457				
			459				X
	IMPULSE	UNIFORM	33				
			43		X		
			70				X
			71				
			137		X		
			139				
			148				
			206			X	X
			225				

				PARTICLE	SURFACE	INTERFACE	CORONA
N_2 (cont.)			267	X	X		
			324	X			
			356				
			404		X		
	IMPULSE	NONUNIFORM	33				
			34				X
			70				X
			71				
			206			X	X
			246				X
			324	X			
			332			X	
			355			X	
			363				
			380				
			382				X
			404		X		
			443				X
			453				
			459				X
			461				X
THEORETICAL							
	DC	UNIFORM	55				
			65				
			103				
			156				
			163				
			209				
			217				
			268				
			271				
			273				
			342				
			343				
			352				
			374				
			377	X			
			419				
	DC	NONUNIFORM	103				
			163				
			271				
			332			X	
			377	X			
	AC	UNIFORM	137		X		
			377	X			
	AC	NONUNIFORM	336	X			
			377	X			
	IMPULSE	UNIFORM	137		X		
			297				
			324	X			
	IMPULSE	NONUNIFORM	324	X			
			332			X	
REVIEW							
	DC	UNIFORM	32				

			PARTICLE	SURFACE	INTERFACE	CORONA
N_2 (cont.)		45				X
		64				
		65				
		66		X		X
		71				
		73		X		
		88		X		
		92	X	X	X	
		96	X	X	X	
		105				
		119		X		
		148				
		150				
		163				
		209				
		244		X		X
		253				
		264				X
		270	X	X		
		280		X	X	
		285		X	X	X
		368				
		435				
		436				
		437				
		438				
DC	NONUNIFORM	45				X
		66		X		X
		71				
		73		X		
		96	X	X	X	
		150				
		163				
		244		X		X
		264				X
		270	X	X		
		285		X	X	X
		447				X
AC	UNIFORM	45				X
		66		X		X
		70				X
		71				
		73		X		
		96	X	X	X	
		105				
		150				
		285		X	X	X
AC	NONUNIFORM	45				X
		66		X		X
		70				X
		71				
		73		X		
		96	X	X	X	
		150				

				PARTICLE	SURFACE	INTERFACE	CORONA
N_2 (cont.)			285		X	X	X
			447				X
	IMPULSE	UNIFORM	45				X
			70				X
			71				
			73		X		
			91	X	X	X	
			92	X	X	X	
			96	X	X	X	
			148				
			150				
			244		X		X
			270	X	X		
			285		X	X	X
	IMPULSE	NONUNIFORM	45				X
			70				X
			71				
			73		X		
			96	X	X	X	
			150				
			244		X		X
			270	X	X		
			285		X	X	X
			447				X
N_2+Ne							
EXPERIMENTAL							
	DC	NONUNIFORM	107				X
N_2+Ne+SF_6							
EXPERIMENTAL							
	DC	UNIFORM	82				
N_2+O_2							
EXPERIMENTAL							
	DC	NONUNIFORM	298				X
REVIEW							
	DC	UNIFORM	264				X
			285		X	X	X
			435				
	DC	NONUNIFORM	264				X
			285		X	X	X
	AC	UNIFORM	285		X	X	X
	AC	NONUNIFORM	285		X	X	X
	IMPULSE	UNIFORM	285		X	X	X
	IMPULSE	NONUNIFORM	285		X	X	X
N_2+SF_6							
EXPERIMENTAL							
	DC	UNIFORM	85				
			88		X		
			161				
			206			X	X

			PARTICLE	SURFACE	INTERFACE	CORONA
N_2+SF_6 (cont.)		218				
		273				
		402				
		403				
DC	NONUNIFORM	44				
		85				
		142				X
		206			X	X
		275				
AC	UNIFORM	130				
		137		X		
		206			X	X
		351				
AC	NONUNIFORM	44				
		206			X	X
		351				
		363				
IMPULSE	UNIFORM	137		X		
		206			X	X
IMPULSE	NONUNIFORM	132	X			
		206			X	X
		246				X
		363				
		376				
		382				X
		443				X
		461				X
THEORETICAL						
DC	UNIFORM	65				
		78				
		166				
		217				
		236				
		271				
		273				
		316				X
		419				
		454				
DC	NONUNIFORM	271				
		316				X
		454				
AC	UNIFORM	137		X		
IMPULSE	UNIFORM	137		X		
IMPULSE	NONUNIFORM	132	X			
		376				
REVIEW						
DC	UNIFORM	45				X
		65				
		88		X		
		96	X	X	X	
		150				
		250			X	
		251	X	X		X
		270	X	X		

				PARTICLE	SURFACE	INTERFACE	CORONA
N_2+SF_6 (cont.)							
	DC	NONUNIFORM	45				X
			96	X	X	X	
			150				
			250			X	
			251	X	X		X
			270	X	X		
	AC	UNIFORM	45				X
			96	X	X	X	
			150				
			250			X	
			251	X	X		X
	AC	NONUNIFORM	45				X
			96	X	X	X	
			150				
			250			X	
			251	X	X		X
	IMPULSE	UNIFORM	45				X
			96	X	X	X	
			150				
			250			X	
			270	X	X		
	IMPULSE	NONUNIFORM	45				X
			96	X	X	X	
			150				
			250			X	
			270	X	X		
N_2O							
EXPERIMENTAL							
	DC	UNIFORM	121				
			122				
	DC	NONUNIFORM	365				
THEORETICAL							
	DC	UNIFORM	166				
			342				
			343				
REVIEW							
	DC	UNIFORM	64				
			150				
			244		X		X
			253				
			285		X	X	X
			438				
	DC	NONUNIFORM	150				
			244		X		X
			285		X	X	X
	AC	UNIFORM	150				
			285		X	X	X
	AC	NONUNIFORM	150				
			285		X	X	X
	IMPULSE	UNIFORM	150				
			244		X		X
			285		X	X	X

				PARTICLE	SURFACE	INTERFACE	CORONA
N_2O (cont.)							
	IMPULSE	NONUNIFORM	150				
			244		X		X
			285		X	X	X
N_2O+O_2							
EXPERIMENTAL							
	DC	UNIFORM	123				
N_2O+SF_6							
EXPERIMENTAL							
	DC	UNIFORM	122				
THEORETICAL							
	DC	UNIFORM	166				
			316				X
	DC	NONUNIFORM	316				X
REVIEW							
	DC	UNIFORM	270	X	X		
	DC	NONUNIFORM	270	X	X		
	IMPULSE	UNIFORM	270	X	X		
	IMPULSE	NONUNIFORM	270	X	X		
NH_3							
EXPERIMENTAL							
	DC	UNIFORM	389				
			390				
REVIEW							
	DC	UNIFORM	285		X	X	X
	DC	NONUNIFORM	285		X	X	X
	AC	UNIFORM	285		X	X	X
	AC	NONUNIFORM	285		X	X	X
	IMPULSE	UNIFORM	285		X	X	X
	IMPULSE	NONUNIFORM	285		X	X	X
NO							
REVIEW							
	DC	UNIFORM	66		X		X
			285		X	X	X
	DC	NONUNIFORM	66		X		X
			285		X	X	X
	AC	UNIFORM	66		X		X
			285		X	X	X
	AC	NONUNIFORM	66		X		X
			285		X	X	X
	IMPULSE	UNIFORM	285		X	X	X
	IMPULSE	NONUNIFORM	285		X	X	X
Ne							
EXPERIMENTAL							
	DC	UNIFORM	82				
			125		X		
			242				
			300				
			344		X		

			PARTICLE	SURFACE	INTERFACE	CORONA
Ne (cont.)		389				
		390				
		451				
DC	NONUNIFORM	107				X
		149				X
		170		X		X
IMPULSE	NONUNIFORM	149				X
THEORETICAL						
DC	UNIFORM	163				
DC	NONUNIFORM	163				
REVIEW						
DC	UNIFORM	45				X
		64				
		66		X		X
		163				
		260		X		
		261		X		
		264				X
		280		X	X	
		285		X	X	X
		334		X		X
		435				
		436				
		437				
		438				
DC	NONUNIFORM	45				X
		66		X		X
		163				
		260		X		
		264				X
		285		X	X	X
		334		X		X
AC	UNIFORM	45				X
		66		X		X
		285		X	X	X
AC	NONUNIFORM	45				X
		66		X		X
		285		X	X	X
IMPULSE	UNIFORM	45				X
		285		X	X	X
IMPULSE	NONUNIFORM	45				X
		285		X	X	X
$Ne+O_2$						
EXPERIMENTAL						
DC	NONUNIFORM	107				X
$Ne+SF_6$						
EXPERIMENTAL						
DC	UNIFORM	82				
O_2						
EXPERIMENTAL						
DC	UNIFORM	46				

				PARTICLE	SURFACE	INTERFACE	CORONA
O_2 (cont.)			113				
			120		X		
			143				
			362				
			389				
			390				
			442				
	DC	NONUNIFORM	38			X	X
			107				X
			169				
			298				X
	IMPULSE	UNIFORM	139				
THEORETICAL							
	DC	UNIFORM	152				
			163				
			343				
			374				
			442				
			465				
	DC	NONUNIFORM	163				
REVIEW							
	DC	UNIFORM	45				X
			64				
			163				
			244		X		X
			253				
			264				X
			285		X	X	X
	DC	NONUNIFORM	45				X
			163				
			244		X		X
			264				X
			285		X	X	X
	AC	UNIFORM	45				X
			285		X	X	X
	AC	NONUNIFORM	45				X
			285		X	X	X
	IMPULSE	UNIFORM	45				X
			244		X		X
			285		X	X	X
	IMPULSE	NONUNIFORM	45				X
			244		X		X
			285		X	X	X
SF_6							
EXPERIMENTAL							
	DC	UNIFORM	42				
			43		X		
			53		X		
			55				
			59				
			60				
			71				
			76				

				PARTICLE	SURFACE	INTERFACE	CORONA
SF_6 (cont.)			79		X		
			82				
			83				
			88		X		
			101				
			114				
			121				
			122				
			124				
			128		X		
			129	X	X		
			153				
			156				
			161				
			164				
			203				
			206			X	X
			218				
			245				X
			254				
			266				
			273				
			277				
			278				
			295		X	X	
			313				X
			319				X
			326				
			330				
			349				
			350				
			354				
			373				
			377	X			
			397				
			399				
			400				
			402				
			403				
	DC	NONUNIFORM	30				
			34				X
			38			X	X
			39	X			
			44				
			50				
			53		X		
			54		X		
			57				X
			71				
			90		X		
			93			X	
			94	X			
			95	X		X	
			114				

			PARTICLE	SURFACE	INTERFACE	CORONA
SF_6 (cont.)		116	X			X
		118				
		128		X		
		129	X	X		
		131				
		141				X
		142				X
		149				X
		164				
		188				X
		206			X	X
		245				X
		254				
		266				
		272				X
		274				X
		275				
		283				
		295		X	X	
		302			X	
		305				
		313				X
		319				X
		326				
		349				
		377	X			
		397				
		407				X
		434				X
		459				X
AC	UNIFORM	15	X			
		33				
		36		X		
		47				X
		70				X
		71				
		72				X
		98	X			X
		130				
		137		X		
		206			X	X
		229		X		
		295		X	X	
		313				X
		319				X
		322		X		
		326				
		351				
		377	X			
		392				
		424			X	
		457				
AC	NONUNIFORM	15	X			
		16				X

		PARTICLE	SURFACE	INTERFACE	CORONA
SF_6 (cont.)	24				
	28	X	X		X
	33				
	34				X
	39	X			
	44				
	47				X
	50				
	68	X		X	
	70				X
	71				
	72				X
	87				
	94	X			
	95	X		X	
	97	X			X
	98	X			X
	99				X
	102			X	
	133				
	182	X	X		
	183	X			
	206			X	X
	214	X	X		
	228		X		
	229		X		
	230				
	233				
	239			X	
	249	X			
	294				
	295		X	X	
	302			X	
	305				
	312		X	X	
	313				X
	319				X
	322		X		
	326				
	336	X			
	351				
	363				
	377	X			
	407				X
	424			X	
	425		X		X
	434				X
	457				
	459				X
IMPULSE UNIFORM	15	X			
	33				
	43		X		
	47				X
	70				X

		PARTICLE	SURFACE	INTERFACE	CORONA
SF_6 (cont.)	71				
	72				X
	79		X		
	137		X		
	139				
	206			X	X
	229		X		
	245				X
	267	X	X		
	295		X	X	
	313				X
	320		X		X
	324	X			
	356				
	404		X		
	413				
	424			X	
IMPULSE NONUNIFORM	14				X
	15	X			
	16				X
	18				X
	28	X	X		X
	33				
	34				X
	39	X			
	47				X
	50				
	70				X
	71				
	72				X
	97	X			X
	102			X	
	118				
	132	X			
	133				
	135				X
	144				X
	149				X
	178	X			
	185	X			
	206			X	X
	214	X	X		
	228		X		
	229		X		
	230				
	233				
	239			X	
	245				X
	246				X
	249	X			
	294				
	295		X	X	
	302			X	
	305				

			PARTICLE	SURFACE	INTERFACE	CORONA
SF_6 (cont.)		312		X	X	
		313				X
		320		X		X
		324	X			
		355			X	
		363				
		369		X		
		376				
		382				X
		404		X		
		407				X
		413				
		416				X
		418		X		
		424			X	
		443				X
		459				X
THEORETICAL						
DC	UNIFORM	55				
		65				
		78				
		101				
		152				
		156				
		165				
		166				
		167				
		184		X		
		186				
		207				X
		209				
		217				
		227				
		236				
		268				
		271				
		273				
		278				
		316				X
		319				X
		348		X		
		349				
		352				
		373				
		377	X			
		406				
		414				X
		417				
		419				
		454				
		464		X		X
DC	NONUNIFORM	188				X
		207				X
		271				

			PARTICLE	SURFACE	INTERFACE	CORONA
SF_6 (cont.)		306				
		316				X
		319				X
		337				X
		338				X
		348		X		
		349				
		359				X
		377	X			
		406				
		414				X
		417				
		434				X
		454				
		464		X		X
AC	UNIFORM	15	X			
		36		X		
		137		X		
		184		X		
		319				X
		348		X		
		377	X			
		406				
AC	NONUNIFORM	15	X			
		230				
		319				X
		336	X			
		348		X		
		377	X			
		406				
		434				X
IMPULSE	UNIFORM	15	X			
		137		X		
		184		X		
		324	X			
		417				
IMPULSE	NONUNIFORM	15	X			
		132	X			
		230				
		324	X			
		347				
		359				X
		376				
		417				
REVIEW						
DC	UNIFORM	45				X
		48				
		64				
		65				
		71				
		73		X		
		88		X		
		92	X	X	X	
		96	X	X	X	

				PARTICLE	SURFACE	INTERFACE	CORONA
SF_6 (cont.)			105				
			119		X		
			150				
			165				
			184		X		
			203				
			209				
			244		X		X
			250			X	
			251	X	X		X
			253				
			258				X
			269	X	X		
			270	X	X		
			280		X	X	
			285		X	X	X
			368				
			435				
			436				
			437				
			438				
	DC	NONUNIFORM	17				X
			45				X
			48				
			71				
			73		X		
			96	X	X	X	
			150				
			234				
			244		X		X
			250			X	
			251	X	X		X
			258				X
			270	X	X		
			285		X	X	X
			447				X
	AC	UNIFORM	45				X
			70				X
			71				
			73		X		
			96	X	X	X	
			105				
			150				
			184		X		
			250			X	
			251	X	X		X
			269	X	X		
			285		X	X	X
	AC	NONUNIFORM	45				X
			70				X
			71				
			73		X		
			96	X	X	X	
			150				

		PARTICLE	SURFACE	INTERFACE	CORONA
SF_6 (cont.)	183	X			
	215		X		X
	234				
	250			X	
	251	X	X		X
	285		X	X	X
	321	X	X		
	447				X
	458	X			X
IMPULSE UNIFORM	45				X
	70				X
	71				
	73		X		
	91	X	X	X	
	92	X	X	X	
	96	X	X	X	
	150				
	184		X		
	244		X		X
	250			X	
	258				X
	270	X	X		
	285		X	X	X
IMPULSE NONUNIFORM	17				X
	45				X
	49		X		
	70				X
	71				
	73		X		
	96	X	X	X	
	150				
	215		X		X
	234				
	244		X		X
	250			X	
	258				X
	270	X	X		
	285		X	X	X
	321	X	X		
	447				X
	458	X			X
SF_6+SO_2					
THEORETICAL					
DC UNIFORM	78				
SO_2					
EXPERIMENTAL					
DC UNIFORM	203				
REVIEW					
DC UNIFORM	64				
	66		X		X
	203				
	244		X		X

				PARTICLE	SURFACE	INTERFACE	CORONA
SO_2 (cont.)			253				
			285		X	X	X
			334		X		X
			435				
			436				
			437				
			438				
	DC	NONUNIFORM	66		X		X
			244		X		X
			285		X	X	X
			334		X		X
	AC	UNIFORM	66		X		X
			285		X	X	X
	AC	NONUNIFORM	66		X		X
			285		X	X	X
	IMPULSE	UNIFORM	244		X		X
			285		X	X	X
	IMPULSE	NONUNIFORM	244		X		X
			285		X	X	X
SeF_6							
EXPERIMENTAL							
	DC	UNIFORM	203				
	DC	NONUNIFORM	30				
REVIEW							
	DC	UNIFORM	150				
			203				
			285		X	X	X
			438				
	DC	NONUNIFORM	150				
			285		X	X	X
	AC	UNIFORM	150				
			285		X	X	X
	AC	NONUNIFORM	150				
			285		X	X	X
	IMPULSE	UNIFORM	150				
			285		X	X	X
	IMPULSE	NONUNIFORM	150				
			285		X	X	X
TeF_6							
REVIEW							
	DC	UNIFORM	438				
$TiCl_4$							
REVIEW							
	DC	UNIFORM	285		X	X	X
	DC	NONUNIFORM	285		X	X	X
	AC	UNIFORM	285		X	X	X
	AC	NONUNIFORM	285		X	X	X
	IMPULSE	UNIFORM	285		X	X	X
	IMPULSE	NONUNIFORM	285		X	X	X

				PARTICLE	SURFACE	INTERFACE	CORONA
Xe							
EXPERIMENTAL							
	DC	UNIFORM	389				
			390				
	DC	NONUNIFORM	170		X		X
THEORETICAL							
	DC	UNIFORM	163				
	DC	NONUNIFORM	163				
REVIEW							
	DC	UNIFORM	45				X
			66		X		X
			163				
			438				
	DC	NONUNIFORM	45				X
			66		X		X
			163				
	AC	UNIFORM	45				X
			66		X		X
	AC	NONUNIFORM	45				X
			66		X		X
	IMPULSE	UNIFORM	45				X
	IMPULSE	NONUNIFORM	45				X

VII. Author Index

Abdel-Salam, M. 1
Abdullah, M. 244
Abon-Seada, M. S. 465
Aihara, Y. 2 180
Akazaki, M. 179 426
Albrecht, H. 3
Aleksandrov, D. D. 4
Aleksandrov, G. N. 5 6 7
Ali, K. 232
Allen, K. R. 8
Allen, N. L. 11
Allibone, T. E. 9 10 11
Altoheh, L. 173
Ando, N. 302
Anis, H. 12 13 14 15 16 17 18
Anjo, K. 410
Aoshima, Y. 2 144 180
Aoyagi, H. 294
Arahata, Y. 249 321
Arai, K. 19
Arima, J. 20
Arnesen, A. 369
Aschwanden, T. 21
Awad, M. 22 23
Azer, A. A. 24

Babu Rajendran, T. V. 25
Bahder, G. 26
Baldo, G. 27
Banford, H. M. 28 29
Banks, A. A. 30
Barnes, H. C. 26 31
Bashara, N. M. 32
Baumgartner, R. 464
Bederson, B. 140
Berberich, L. J. 33
Berg, D. 34 203 313
Berger, G. 35
Berger, S. 36 37
Bertein, H. 38
Berthold, V. 39
Bhalla, M. S. 40 41 42
Biasiutt, G. 21
Binns, D. F. 43 44
Blaha, J. 380
Blair, D. T. A. 45 45 46
Blodgett, F. W. 47
Bloss, W. H. 3
Bobo, J. C. 423
Boeck, W. 48 49
Boecker, H. 177 370 463
Bohme, H. 23 50
Boillot, A. 35

Bortnik, I. M. 51 52 53 54 55
Bouillard, J. G. 256
Bouldin, D. W. 330
Boulloud, A. 56
Bouvier, B. 57 134
Boyd, H. A. 58 59 60 61
Bozin, S. E. 62 63
Brand, K. P. 64 65
Bregnsbo, E. 349
Brice, T. J. 457
Brown, S. C. 66
Bruce, F. M. 58
Brzosko, J. S. 67
Brzostek, E. 231
Buchholz, K. H. 68 239
Burger, W. 255
Busch, W. 69
Bychkov, Y. I. 296
Calderwood, J. H. 301
Camilli, G. 70 71 72 73
Carrara, G. 74 75
Carter, J. G. 81
Cernysev, V. J. 439
Chakravarty, B. 342 343
Chalmers, I. D. 76
Chanin, L. M. 77
Chantry, P. J. 78 236

Chee-Hing, D. J. 79

Chen, C. L. 236

Chiba, M. 415

Chistyakov, P. N. 80

Christodoulides, A. A. 331

Christophorou, L. G. 81 82 83 84 85 330 331

Coates, R. 86

Cobine, J. D. 87

Cohen, E. H. 88

Comsa, R. P. 13 24 377 440

Cones, H. N. 341

Conti, V. J. 89

Cooke, C. M. 54 90 91 92 93 94 95

Cookson, A. H. 92 95 96 97 98 99 267

Cortina, R. 100 340

Craggs, J. D. 40 41 42 283 285 304 311 361 362

Crichton, B. H. 101 137

Crichton, G. C. 59 60

Cronin, J. C. 102

Crowe, R. W. 103 104 115

Dakin, T. W. 105 313 459

Dale, S. J. 135 136

Daniel, T. N. 106

Das, M. K. 107

Davies, D. E. 108 109 262

Davies, D. K. 110 111 236
Davis, G. H. L. 112
DeBitetto, D. J. 113
Degnan, W. J. 176
Dellera, L. 74
Devins, J. C. 104 114 115
Diessner, A. 116
Dincer, M. S. 161
Dring, D. 9 10 11
Driver, C. 117
Dubois, A. 423
Dupuy, J. 118
Dutton, J. 86 106 119 120 121 122 123 124 125 126
Ellington, H. I. 127
Endo, F. 128 129
Ermel, M. 130 131
Eteiba, M. B. 132 376
Evans, N. B. 120
Facklam, T. 133
Fallou, B. 134
Farish, O. 97 98 135 136 137 138
Felsenthal, P. 139
Fiklik, V. 240
Fischer, A. 177 463
Fisher, L. H. 113 140 143 157 224 225 293

Fitch, R. K. 108

Fleming, S. P. 178

Foord, T. R. 141 142

Freely, J. B. 143

Frost, L. S. 253

Fujinama, H. 144

Fujita, H. 145

Fujiwara, Y. 320 321 322

Galand, J. 134

Gallet, G. 35 146 147 256 257

Gallimberti, I. 27

Ganger, B. 148 149 150

Garcia, F. G. 26

Garcia, H. N. 27 35

Gary, C. 35

Geballe, R. 151 152

George, D. W. 153

Gerhold, J. 154

Gervais, Y. 326 351

Gilbert, A. 118

Gockenbach, E. 155 156

Golden, D. E. 157

Goldman, M. 35 158

Goodyear, C. C. 62 63 366 367

Gordon, G. S. 71

Gorin, B. N. 159

Gosho, Y. 160

Govinda Raju, G. R. 161 162 163 164 165 166 167 174 364 365

Grenon, J. F. 289 290

Griffiths, R. F. 357

Grunberg, P. 168

Hackam, R. 162 163 164 165 166 167 169 170 171 172 173 174 365

Hagenguth, J. H. 175 176

Hahn, G. 177

Hampton, B. F. 178

Hara, M. 179

Harada, T. 2 180

Harbec, G. 286 287 288 289 290

Harris, F. M. 86 106 121 122 123 124

Hasebe, K. 181

Hasegawa, H. 401

Hauschild, W. 68 182 183 184 185 186 239 305 306

Hayashi, H. 413

Hayashi, M. 187

Hazel, R. 188

Heilbronner, F. W. 189

Heisen, A. 190

Hepworth, J. K. 191 192

Hermstein, W. 193 194

Heylen, A. E. D. 195 196 197 198 199 200 201 202

Hickam, W. M. 203

Higashino, T. 413
Hileman, A. R. 441
Hixson, W. A. 204
Hoffman, R. L. 204
Hoh, S. 325
Honda, K. 205
Hood, R. J. 43
Hopkins, B. J. 109
Horii, K. 323 324
Howard, P. R. 206 207
Hughes, D. B. 121 122 123
Hughes, M. H. 125
Hunter, S. R. 81
Husain, E. 208 209 316 317
Hutzler, B. 27 35 146 210 211
Hutzler-Barre, D. 210 211
IEEE Committee Report 212
Ibrahim, O. E. 137
Ichihara, Y. 213
Ikeda, C. 214
Iliceto, F. 237
Inamura, S. 249
Inuishi, Y. 215
Isa, H. 216
Isaksson, K. 291
Ishikawa, R. 129
Iskoldskii, A. I. 296

Itaka, K. 413
Ito, Y. 2
Itoh, H. 217 218 399
Ivanov, V. L. 6
Jahn, G. 380
Jahn, H. 219
James, D. R. 82 83 84 85 330
Jervis-Hunter, G. 220
Johansen, I. 369
Jones, B. 221 222
Jones, G. J. 124
Jones, J. 223
Jones, R. E. 448 449
Jouaire, J. 27 35
Kachickas, G. A. 224 225
Kachler, A. J. 226
Karlsson, P. W. 227 349 350
Kawaguchi, Y. 228 229 230
Kawai, H. 181
Kawane, K. 318
Kedzia, J. 231
Khalifa, M. 232
Kichikawa, T. 128 129
Kielmann, F. 186 233
Kind, D. 234
Kishijima, I. 410
Kita, K. 419

Klewe, R. C. 191 192

Kline, L. E. 235 236

Klobukowska, J. 67

Knudsen, N. 237

Kohrman, W. 238

Kopainsky, J. 65

Korshunov, G. S. 297

Kosztaluk, R. 257

Kouno, T. 145 325

Kourtev, J. 344 345

Kremnev, V. V. 297

Krey, B. 68 239

Kromer, I. L. 147 257

Kucera, J. 240 241

Kucukarpaci, H. N. 242

Kuffel, E. 188 243 244 245 246 363 461

Kuffel, J. 247

Kulkarni, S. V. 316 317

Kuttner, H. 248

Kuwahara, H. 249 321

LaForest, J. J. 226

Lacey, R. 147

Laghari, J. R. 250 251

Lakshminarasimha, C. S. 25 252 402 403

Lanoue, T. J. 453

Lautensclager, H. G. 133

Lebeda, J. 350

Lee, A.	253				
Lee, Z. Y.	254				
Lemke, E.	255	307			
Leon, B.	423				
Leroy, G.	35	147	256	257	
Lewis, T. J.	201	202			
Liao, T. W.	72	175	241	258	
Linck, H.	259				
Lindsay, E. W.	33	460			
Linn, F. S.	151				
Llewellyn-Jones, F.	260	261	262	263	
Lobley, E. H.	191				
Loeb, L. B.	264	298			
Los, E. J.	265				
Lucas, J.	242	252			
Luxa, G.	105				
Lyapin, A. G.	266				
MacAlpine, J. M. K.	267				
Malik, N. H.	268	269	270	271	272
	273	274	275	382	461
Maller, V. N.	276	277	278	279	
Mansoor, F. F.	44				
Manterfield, R. J.	315				
Marton, J. P.	332				
Masetti, C.	377				
Mason, J. H.	280				
Mastovsky, J.	380				

Mathis, R. A. 81 82 83 84 85 330

Matsuo, H. 328

McAllister, I. W. 281

McClure, G. W. 282

McCorkle, D. L. 85

McCormick, N. R. 283

McElroy, A. J. 26

McNeall, P. I. 404

Meats, R. J. 284

Meek, J. M. 285

Menemenlis, C. 286 287 288 289 290 291

Menemenlis, H. 7

Menes, M. 292 293

Menju, S. 228 229 230 294 295

Mesyats, G. A. 296 297

Miller, C. G. 298

Miller, H. C. 299 300

Mirza, J. S. 301

Misakian, M. 434

Miyachi, I. 309

Miyake, K. 411 412

Miyoshi, Y. 187

Mizukami, T. 302

Morgan, G. B. 120

Mori, N. 213

Morris, W. T. 126

Moruzzi, J. L. 303 304

Mosch, W. 305 306 307

Mukhedkar, D. 326 351

Muller, E. K. 308

Murai, Y. 20

Nagata, M. 309

Nagata, S. 20

Naidu, M. S. 25 276 277 278 310 311 373 402 403

Nakanishi, K. 312

Narbut, P. 313

Naumann, W. 314

Nelson, J. K. 315

Nema, R. S. 208 209 316 317

Nielsen, T. M. 349

Niemeyer, L. 359

Nishihara, S. 413

Nitta, T. 312 318 319 320 321 322

Noguchi, T. 323 324

Noguchi, Y. 145 325

Ohno, H. 294

Ohuch, Y. 410

Olendzkaia, N. F. 4

Olivier, G. 326

Oppermann, G. 105

Orlinov, V. 344 345

Oshige, T. 327 328

Ozawa, J. 129

Pace, J. D. 329

Pace, M. O. 330

Pai, R. Y. 330 331

Pai, S. T. 332

Panov, A. A. 55

Papadias, B. C. 333

Papoular, R. 334

Parekh, H. 335 336 337 338 383 384 385

Paris, L. 339 340

Park, J. H. 341

Parker, A. B. 263 329

Paul, J. C. 342 343

Pech, P. 344 345

Pedersen, A. 227 281 346 347 348 349 350

Pelletier, J. M. 351

Penney, G. W. 387

Perlin, A. S. 352

Perry, E. R. 102

Pfeiffer, W. 353 354 355 356

Phelps, C. T. 357

Phillips, K. 8

Pilling, J. 358

Pinnekamp, F. 359

Plump, R. E. 71 72 73 258

Podporkyn, G. V. 5 7

Prasad, A. N. 310 311 360 361 362

Price, D. A. 252

Proud, J. M. 139

Ptitsyn, S. V. 4

Qiu, Y. 363

Qureshi, A. H. 250 251 269 270 271 272 273 274 275 382 461

Radwan, R. 232

Radwan, R. M. 465

Radwan, R. O. 245

Raja Rao, C. 364 365

Razzak, S. A. A. 366 367

Reeves, M. L. 152

Reichman, J. 247

Rein, A. 368 369

Rejngold, A. S. 439

Remde, H. E. 370

Renardieres Group, Les 371

Richards, P. H. 153

Richter, K. 372

Risbud, A. V. 373

Ritow, H. 374

Riu, J. 146

Rizk, F. A. M. 132 375 376 377 424

Robinson, M. 378 379

Rohlfs, A. F. 176 241

Rork, G. D. 77

Rothhardt, L. 380
Rudge, A. J. 30
Ryzko, H. 381
Saelee, H. T. 242
Safar, Y. A. 274 382
Saha, T. N. 342 343
Sakamoto, S. 218
Sakata, K. 229 230
Salam, M. A. 232
Salama, M. M. A. 335 383 384 385
Sartorio, G. 74
Sato, H. 302
Scheibe, D. 314
Schmiedl, G. 386
Schmitz, L. S. 387
Schneider, H. M. 388
Schonhuber, M. J. 389 390
Schramm, J. 391
Schrier, S. 392
Schroder, G. A. 393 394
Schulz, W. 395
Schwab, A. 396
Sforzini, M. 100
Sharbaugh, A. H. 397 398 450
Shibuya, Y. 312 319 320 321
Shimozuma, M. 217 218 399 400 401
Shkilev, A. V. 159

Siddagangappa, M. C. 402 403

Sigmond, R. S. 158

Sikolov, S. M. 6

Simon, M. F. 27 35 256

Simons, J. H. 457

Skipper, D. J. 404

Skubis, J. 231

Sletten, A. M. 135 136

Smith, C. W. 301

Sohst, H. 405

Sommerman, G. M. L. 98

Spriggs, K. R. 406

Srivastava, K. D. 14 15 16 17 18 79 279 335 336 337 338 383 384 385

Steiniger, E. 407

Sturk, P. 408

Suzuki, T. 409 410 411 412

Tada, T. 420 430 431 432

Tagashira, H. 217 218 399 400 401

Takagi, T. 413

Takahashi, H. 321

Takahashi, K. 294 295

Takuma, T. 144 414 415 416 417 418 419 443

Tan, B. C. 125

Taschini, A. 100

Tatuso, T. 420

Tedford, D. J. 29 58 61 76 101 138

Thanh, L. C. 421

Theophilus, G. D. 275

Thione, L. 75 422

Thoris, J. 423

Tozer, B. A. 191 192 220

Trinh, N. G. 424 425

Trump, J. G. 93 116

Tuneyase, I. 426

Turner, F. J. 388

Udo, T. 427 428 429 430 431 432 433

Van Brunt, R. J. 434

Van Heeswijk, R. G. 247

Veguri, S. 145

Velazques, R. 94

Vigreux, J. 105

Vijh, A. K. 435 436 437 438

Vincent, C. 424 425

Volker, P. 356

Volkova, O. V. 439

Vuhuw, Q. 440

Wagner, C. F. 441

Wagner, E. 3

Wagner, K. H. 442

Watanabe, T. 20 249 416 417 418 419 443

Watanabe, Y. 420 431 432 433 444 445 446
Waters, R. T. 222 447 448 449
Watson, P. K. 397 398 450
Weston, G. F. 451
Whitman, L. C. 452 453
Whittington, H. W. 46
Wieland, A. 454
Wiesinger, J. 455
Williams, A. W. 89 112
Williams, B. G. 456
Wilson, W. A. 457
Wind, G. 57 105
Winkelnkemper, H. 105
Winters, D. E. 31
Witter, K. 391
Wootton, R. E. 78 95 99 458
Works, C. N. 33 34 313 459 460
Yamada, N. 318 322
Yankelevich, Y. B. 297
Yializis, A. 246 461
Yoda, B. 214
Yokoi, Y. 309
Yoshioka, A. 312
Young, D. R. 462
Zacke, P. 177 463
Zaengl, W. 464
Zaffanella, L. E. 226

Zaghloul, A. R. M. 465

Zentner, R. 396

VIII. References

1. M. Abdel-Salam, "Calculating the Effect of High Temperature on the Onset Voltages of Negative Discharges", J. Phys. D: Appl. Phys., Vol. 9, pp. L149-L154 (1976).

2. Y. Aihara, T. Harada, Y. Aoshima, and Y. Ito, "Impulse Flashover Characteristics of Long Air Gaps and Atmospheric Correction", IEEE Trans. on Power Appar. Syst., Vol. PAS-97, no. 2, pp. 342-348 (1978).

3. H. Albrecht, E. Wagner, and W. H. Bloss, "Calculation and Measurement of the Discharge Characteristics of a Positive Corona", ETZ-A, Vol. 94, no. 10, pp. 599-603 (1973).

4. D. D. Aleksandrov, N. F. Olendzkaia, and S. V. Ptitsyn, "Electrical Strength of a High-Voltage Tube", Sov. Phys. Tech. Phys., Vol. 3, pp. 837-845 (1958).

5. G. N. Aleksandrov and G. V. Podporkyn, "Analysis of Experimental Data on The Electric Strength of Long Air Gaps", IEEE Trans. on Power Appar. Syst., Vol. PAS-98, no. 2, pp. 597-605 (1979).

6. G. N. Aleksandrov, V. L. Ivanov, and S. M. Sikolov, "Raising of the Electrical Breakdown Voltage of Long Air Spark Gaps Through Forced Voltage Distribution", Elektrie, Vol. 34, pp. 400-401 (1980).

7. G. N. Aleksandrov, G. V. Podporkyn, and H. Menemenlis, "Further Improvement of the Critical Charge Method for the Theoretical Evaluation of the Breakdown Voltage of Conductor Bundle-to-Plane Gaps", IEEE Trans. on Power Appar. Syst., Vol. PAS-99, no. 2, pp. 687-694 (1980).

8. K. R. Allen and K. Phillips, "Effect of Humidity on the Spark Breakdown Voltage", Nature, Vol. 183, pp. 174-175 (1959).

9. T. E. Allibone and D. Dring, "Influence of Humidity on the Breakdown of Sphere and Rod Gaps Under Impulse Voltages of Short and Long Wavefronts", Proc. IEE, Vol. 119, no. 9, pp. 1417-1422 (1972).

10. T. E. Allibone and D. Dring, "Effect of Humidity on Sparkover of Airgaps under Impulse Voltages", Proc. IEE, Vol. 121, no. 3, pp. 221-222 (1974).

11. T. E. Allibone, D. Dring, and N. L. Allen, "Influence of Humidity on the Sparkover of Rod-Rod Gaps of Several Geometrical Forms Subjected to Positive Impulse Voltages of Varying Waveshapes", Proc. IEE, Vol. 126, no. 5, pp. 462-466 (1979).

12. H. Anis, "A Study of Early Discharges in Air Gaps", IEEE Trans. on Industry Appl., Vol. IA-16, no. 4, pp. 566-575 (1980).

13. H. Anis and R. P. Comsa, "Bivariate Probability of Breakdown Under Switching Surges", IEEE Trans. on Power Appar. Syst., Vol. PAS-92, no. 3, pp. 877-885 (1973).

14. H. Anis and K. D. Srivastava, "Pre-Breakdown Discharges in Rod-Plane Gaps in SF_6 Under Positive Switching Impulse", IEEE Trans. on Elec. Insul., Vol. EI-16, no. 6, pp. 552-563 (1981).

15. H. Anis and K. D. Srivastava, "Particle-Initiated Breakdowns in Compressed Gas Insulation under Time-Varying Voltages", IEEE Trans. on Power Appar. Syst., Vol. PAS-100, no. 8, pp. 3694-3702 (1981).

16. H. Anis and K. D. Srivastava, "Non-Uniform Field Breakdown of SF_6 Insulation Under Combined AC and Impulse Voltages", IEEE Trans. on Power Appar. Syst., Vol. PAS-101, no. 9, pp. 3097-3104 (1982).

17. H. Anis and K. D. Srivastava, "Prebreakdown Discharges in Highly Nonuniform Fields in Relation to Gas Insulated Systems", IEEE Trans. on Elec. Insul., Vol. EI-17, no. 2, pp. 131-142 (1982).

18. H. Anis and K. D. Srivastava, "Breakdown of Rod-Plane Gaps in SF_6 Under Positive Switching Impulses", IEEE Trans. on Power Appar. Syst., Vol. PAS-101, no. 3, pp. 537-546 (1982).

19. K. Arai, "Electric Field Near a Projection on a Cylindrical Conductor and Onset of Corona Discharge", Elec. Eng. in Japan, Vol. 88, no. 11, pp. 20-27 (1968).

20. J. Arima, T. Watanabe, Y. Murai, and S. Nagata, "Study of Predischarge Phenomena in Air Gaps on the Basis of Current Pulse Distribution (Application of Positive Impulse Voltage with Long Wavefront Duration)", Elec. Eng. in Japan, Vol. 91, no. 6, pp. 121-129 (1971).

21. T. Aschwanden and G. Biasiutt, "Dielectric Strength of Hexafluoropropylene (C_3F_6)", J. Phys. D: Appl. Phys., Vol. 14, pp. L189-L192 (1981).

22. M. Awad, "Breakdown of Air Spark Gaps with Contaminated Insulating Material Barriers", Elektrie, Vol. 29, pp. 559-560 (1975).

23. M. Awad and H. Bohme, "Breakdown Voltage of Inhomogeneous Spark Gaps with Contaminated Barriers", Elektrie, Vol. 31, pp. 35-38 (1977).

24. A. A. Azer and R. P. Comsa, "Influence of Field Nonuniformity on the Breakdown Characteristics of Sulfur Hexafluoride", IEEE Trans. on Elec. Insul., Vol. EI-8, no. 4, pp. 136-142 (1973).

25. T. V. Babu Rajendran, C. S. Lakshminarasimha, and M. S. Naidu, "Effect of Electrode Geometry on the Positive Impulse Breakdown in Carbon Dioxide", IEEE Trans. on Elec. Insul., Vol. EI-18, no. 4, pp. 455-457 (1983).

26. G. Bahder, F. G. Garcia, H. C. Barnes, and A. J. McElroy, "Nonlinearity in Impulse Breakdown of Very Large Air Gaps", IEEE Trans. on Power Appar. Syst., Vol. PAS-93, no. 3, pp. 960-968 (1974).

27. G. Baldo, I. Gallimberti, H. N. Garcia, B. Hutzler, J. Jouaire, and M. F. Simon, "Breakdown Phenomena of Long Gaps Under Switching Impulse Conditions-Influence of Distance and Voltage Level", IEEE Trans. on Power Appar. Syst., Vol. PAS-94, no. 4, pp. 1131-1139 (1975).

28. H. M. Banford, "Particles and Breakdown in SF_6-Insulated Apparatus", Proc. IEE, Vol. 123, No. 9, pp. 877-881 (1976).

29. H. M. Banford and D. J. Tedford, "Breakdown of Nitrogen in Long Uniform-Field Gaps Stressed with High Voltage", J. Phys. D: Appl. Phys., Vol. 12, pp. 127-132 (1979).

30. A. A. Banks and A. J. Rudge, "Selenium Hexafluoride: Dielectric Strength and Some Chemical Properties", Nature, Vol. 171, pp. 390-391 (1953).

31. H. C. Barnes and D. E. Winters, "UHV Transmission Design Requirements - Switching Surge Flashover Characteristics of Extra Long Air Gaps", IEEE Trans. on Power Appar. Syst., Vol. PAS-90, no. 4, pp. 1579-1589 (1971).

32. N. M. Bashara, "Some Fluorinated Liquid Dielectrics", AIEE Trans., Vol. 72, Part I, pp. 79-85 (1953).

33. L. J. Berberich, C. N. Works, and E. W. Lindsay, "Electric Breakdown of Perfluorocarbon Vapors and Their Mixtures with Nitrogen", AIEE Trans., Vol. 74, Part I, pp. 660-666 (1955).

34. D. Berg and C. N. Works, "Effect of Space Charge on Electric Breakdown of Sulfur Hexafluoride in Nonuniform Fields", AIEE Trans., Part III, Vol. 77, pp. 820-823 (1958).

35. G. Berger, A. Boillot, G. Gallet, H. N. Garcia, C. Gary, M. Goldman, B. Hutzler, J. Jouaire, G. Leroy, M. F. Simon, "Breakdown in Air at Large Distances", Rev. Gen. Elect., Vol. 83, no. 11, pp. 763-789 (1974).

36. S. Berger, "Onset or Breakdown Voltage Reduction by Electrode Surface Roughness in Air and SF_6", IEEE Trans. on Power Appar. Syst., Vol. PAS-95, no. 4, pp. 1073-1079 (1976).

37. S. Berger, "Investigations of the Occurrence of Erratic Low Breakdown Voltages in Compressed Air", IEEE Trans. on Power Appar. Syst., Vol. PAS-96, no. 4, pp. 1179-1189 (1977).

38. H. Bertein, "Charges on Insulators Generated by Breakdown of Gas", J. Phys. D: Appl. Phys., Vol. 6, pp. 1910-1916 (1973).

39. V. Berthold, "Influence of the Voltage Form on the Particle-Ignited Breakdown of SF_6 Insulations", Elektrie, Vol. 30, pp. 444-446 (1976).

40. M. S. Bhalla and J. D. Craggs, "Measurement of Ionization and Attachment Coefficients in Carbon Dioxide in Uniform Fields", Proc. Phys. Soc., Vol. 76, pp. 369-377 (1960).

41. M. S. Bhalla and J. D. Craggs, "Ionization and Attachment Coefficients in CO", Proc. Phys. Soc., Vol. 78, pp. 438-447 (1961).

42. M. S. Bhalla and J. D. Craggs, "Measurement of Ionization and Attachment Coefficients in Sulphur Hexafluoride in Uniform Fields", Proc. Phys. Soc., Vol. 80, pp. 151-160 (1962).

43. D. F. Binns and R. J. Hood, "Breakdown in SF_6 and N_2 under Direct and Impulse Voltages", Proc. IEE, Vol. 116, no. 11, pp. 1962-1968 (1969).

44. D. F. Binns and F. F. Mansoor, "Breakdown Characteristics for a Heated Busbar in a Gas-Filled Duct", IEEE Trans. on Power Appar. Syst., Vol. PAS-98, no. 1, pp. 19-24 (1979).

45. D. T. A. Blair, "Breakdown Voltage Characteristics", Electrical Breakdown of Gases, ed. by J. M. Meek and J. D. Craggs, John Wiley and Sons, New York, pp. 533-653 (1978).

46. D. T. A. Blair and H. W. Whittington, "Ionization and Breakdown in Oxygen", J. Phys. D: Appl. Phys., Vol. 8, pp. 405-415 (1975).

47. F. W. Blodgett, "Properties of Octafluorocyclobutane, a Dielectric Gas", AIEE Trans., Vol. 78, Part I, pp. 63-66 (1959).

48. W. Boeck, "Insulation Problems in SF_6-Insulated Metal Clad Systems", Bull. Schweizerischen Elektro-Tech. Vereins, Vol. 66, pp. 1234-1241 (1975).

49. W. Boeck, "SF_6-Insulation Breakdown Behavior Under Impulse Stress", Surges in High-Voltage Networks, ed. by K. Ragaller, Plenum Press, New York, pp. 207-226 (1980).

50. H. Bohme, "Trends in High Voltage-Insulation Technology: Utilization of Weakly Inhomogeneous Electric Fields", Elektrie, Vol. 35, pp. 530-537 (1981).

51. I. M. Bortnik, "Investigation of the Breakdown Characteristics of an Electrical Discharge in Helium. I", Sov. Phys. Tech. Phys., Vol. 13, no. 6, pp. 769-776 (1968).

52. I. M. Bortnik, "Investigation of the Breakdown Characteristics of an Electrical Discharge in Helium. II", Sov. Phys. Tech. Phys., Vol. 13, no. 6, pp. 777-783 (1968).

53. I. M. Bortnik, "Prebreakdown Processes in High-Pressure Gases", Sov. Phys. Tech. Phys., Vol. 23, no.2, pp. 156-160 (1978).

54. I. M. Bortnik and C. M. Cooke, "Electrical Breakdown and the Similarity Law in SF_6 at Extra-High Voltages", IEEE Trans. on Power Appar. Syst., Vol. PAS-91, no. 5, pp. 2196-2203 (1972).

55. I. M. Bortnik and A. A. Panov, "Discharge Ignition Characteristics and the Ionization and Electron-Attachment Coefficients of CF_4, C_2F_6, and SF_6", Sov. Phys. Tech. Phys., Vol. 16, no. 4, pp. 571-575 (1975).

56. A. Boulloud, "New Measurements of the Dielectric Strengths of Compressed Hydrogen and Nitrogen", J. Phys. Radium, Vol. 17A, pp. 26A-31A (1956).

57. B. Bouvier and G. Wind, "Properties of Sulfur Hexafluoride Which Enabled its Choice as a Gaseous Dielectric and a Medium for Electric Arc Extinction, I", Rev. Gen. Elect., Vol. 86, pp. 773-780 (1977).

58. H. A. Boyd, F. M. Bruce, and D. J. Tedford, "Sparkover in Long Uniform-Field Gaps", Nature, Vol. 210, pp. 719-720 (1966).

59. H. A. Boyd and G. C. Crichton, "Measurement of Ionization and Attachment Coefficients in SF_6", Proc. IEE, Vol. 118, no. 12, pp. 1872-1873 (1971).

60. H. A. Boyd and G. C. Crichton, "Uniform-Field Breakdown-Voltage Measurements in Sulphur Hexafluoride", Proc. IEE, Vol. 119, no. 2, pp. 275-276 (1972).

61. H. A. Boyd and D. J. Tedford, "The Mechanism of Breakdown of Ambient Air in Long Uniform-Field Gaps", J. Phys. D: Appl. Phys., Vol. 4, pp. 1140-1146 (1971).

62. S. E. Bozin and C. C. Goodyear, "Measurement of Ionization and Attachment Coefficients in Chlorine", Brit. J. Appl. Phys., Vol. 18, pp. 49-57 (1967).

63. S. E. Bozin and C. C. Goodyear, "Growth of Ionization Currents in Carbon Tetrafluoride and Hexafluoroethane", Brit. J. Appl. Phys. (J. Phys. D), pp. 327-334 (1968).

64. K. P. Brand, "Dielectric Strength, Boiling Point, and Toxicity of Gases - Different Aspects of the Same Basic Molecular Properties", IEEE Trans. on Elec. Insul., Vol. EI-17, no. 5, pp. 451-456 (1982).

65. K. P. Brand and J. Kopainsky, "Breakdown Field Strength of Unitary Attaching Gases and Gas Mixtures", Appl. Phys. (Springer-Verlag), Vol. 18, pp. 321-331 (1979).

66. S. C. Brown, Basic Data of Plasma Physics, John Wiley and Sons, New York, pp. 142-274 (1959).

67. J. S. Brzosko and J. Klobukowska, "Self-Sustaining Partial Discharges in Argon at the Dielectric Surface", IEEE Trans. on Elec. Insul., Vol. EI-18, no. 4, pp. 420-428 (1983).

68. K. H. Buchholz, W. Hauschild, and B. Krey, "Influence of the Microgeometry of a Longitudinal Boundary Surface on the Spark-Over Alternating Voltage in SF_6", Elektrie, Vol. 26, pp. 469-472 (1974).

69. W. Busch, "Air Humidity: An Important Factor for UHV Design", IEEE Trans. on Power Appar. Syst., Vol. PAS-97, no. 6, pp. 2086-2093 (1978).

70. G. Camilli, "Gas-Insulated Power Transformers", Proc. IEE, Vol. 107A, pp. 375-382 (1960).

71. G. Camilli, G. S. Gordon, and R. E. Plump, "Gaseous Insulation for High Voltage Transformers", AIEE Trans., Vol. 71, pp. 1-10 (1952).

72. G. Camilli, T. W. Liao, and R. E. Plump, "The Dielectric Behavior of Some Fluorogases and Their Mixtures", AIEE Trans., Vol. 74, Part I, pp. 637-642 (1955).

73. G. Camilli and R. E. Plump, "Fluorine-Containing Gaseous Dielectrics", AIEE Trans., Vol. 72, Part I, pp. 93-102 (1953).

74. G. Carrara, L. Dellera, and G. Sartorio, "Switching Surge with Very Long Fronts (Above 1500 microseconds): Effect of Front Shape on Discharge Voltage", IEEE Trans. on Power Appar. Syst., Vol. PAS-89, no. 3, pp. 453-456 (1970).

75. G. Carrara and L. Thione, "Switching Surge Strength of Large Air Gaps: A Physical Approach", IEEE Trans. on Power Appar. Syst., Vol. PAS-95, no. 2, pp. 512-524 (1976).

76. I. D. Chalmers and D. J. Tedford, "Spark Breakdown in Sulphur Hexafluoride and Arcton 12", Proc. IEE, Vol. 118, no. 12, pp. 1893-1894 (1971).

77. L. M. Chanin and G. D. Rork, "Pressure-Dependent Breakdown Potentials in Penning Mixtures", J. Appl. Phys., Vol. 36, no. 5, pp. 1515-1522 (1965).

78. P. J. Chantry and R. E. Wootton, "A Critique of Methods for Calculating the Dielectric Strength of Gas Mixtures", J. Appl. Phys., Vol. 52, no. 4, pp. 2731-2739 (1981).

79. D. J. Chee-Hing and K. D. Srivastava, "Insulation Performance of Dielectric-Coated Electrodes in Sulphur Hexafluoride Gas", IEEE Trans. on Elec. Insul., Vol. EI-10, no. 4, pp. 119-124 (1975).

80. P. N. Chistyakov, "Concerning the Right Branch of the Function Uf=f(pd) for Some Gases", Sov. Phys. Tech. Phys., Vol. 4, pp. 1154-1157 (1959).

81. L. G. Christophorou, S. R. Hunter, J. G. Carter, and R. A. Mathis, "Gases for Possible Use in Diffuse-Discharge Switches", Appl. Phys. Lett., Vol. 41, no. 2, pp. 147-149 (1982).

82. L. G. Christophorou, D. R. James, and R. A. Mathis, "On the Role of the Electron Impact Ionization and Electron Scattering Cross-Section in the Breakdown Strength of Dielectric Gases", J. Phys. D: Appl. Phys., Vol. 12, pp. 1223-1236 (1979).

83. L. G. Christophorou, D. R. James, and R. A. Mathis, "Dielectric Gas Mixtures with Polar Components", J. Phys. D: Appl. Phys., Vol. 14, pp.675-692 (1981).

84. L. G. Christophorou, R. A. Mathis, and D. R. James, "Isotope Dependence of the Breakdown Strength of Gases", J. Appl. Phys., Vol. 54, no. 6, pp. 3098-3100 (1983).

85. L. G. Christophorou, R. A. Mathis, D. R. James, and D. L. McCorkle, "On the Role of Electron Attachment in the Breakdown Strength of Gaseous Dielectrics", J. Phys. D: Appl. Phys., Vol. 14, pp. 1889-1901 (1981).

86. R. Coates, J. Dutton, and F. M. Harris, "Electrical Breakdown of Nitrogen at High Electric Fields", Proc. IEE, Vol. 125, no. 6, pp. 558-562 (1978).

87. J. D. Cobine, "Some Electrical and Thermal Characteristics of Helium and Sulfur-Hexafluoride Mixtures", AIEE Trans., Part I, Vol. 74, pp. 318-321 (1955).

88. E. H. Cohen, "The Electric Strength of Highly Compressed Gases", Proc. IEE, Part A, Vol. 103, pp. 57-68 (1956).

89. V. J. Conti and A. W. Williams, "Ionization Growth in Carbon Dioxide", J. Phys. D: Appl. Phys., Vol. 8, pp. 2198-2207 (1975).

90. C. M. Cooke, "Ionization, Electrode Surfaces and Discharges in SF_6 at Extra-High Voltages", IEEE Trans. on Power Appar. Syst., Vol. PAS-94, no. 5, pp. 1518-1523 (1975).

91. C. M. Cooke, "Electrical Insulation Reliability in Gaseous Systems", Surges in High-Voltage Networks, ed. by K. Ragaller, Plenum Press, New York, pp. 227-248 (1980).

92. C. M. Cooke and A. H. Cookson, "The Nature and Practice of Gases as Electrical Insulators", IEEE Trans. on Elec. Insul., Vol. EI-13, pp. 239-248 (1978).

93. C. M. Cooke and J. G. Trump, "Post-Type Support Spacers for Compressed Gas-Insulated Cables", IEEE Trans. on Power Appar. Syst., Vol. PAS-92, no. 5, pp. 1441-1447 (1973).

94. C. M. Cooke and R. Velazques, "The Insulation of Ultra-High Voltage in Coaxial Systems Using Compressed SF_6 Gas", IEEE Trans. on Power Appar. Syst., Vol. PAS-96, no. 5, pp. 1491-1497 (1977).

95. C. M. Cooke, R. E. Wootton, and A. H. Cookson, "Influence of Particles on AC and DC Electrical Performance of Gas Insulated Systems at Extra-High Voltage", IEEE Trans. on Power Appar. Syst., Vol. PAS-97, no. 3, pp. 768-777 (1977).

96. A. H. Cookson, "Electrical Breakdown for Uniform Fields in Compressed Gases", Proc. IEE, Vol. 117, no. 3, pp. 269-279 (1970).

97. A. H. Cookson and O. Farish, "Particle-Initiated Breakdown Between Coaxial Electrodes in Compressed SF_6", IEEE Trans. on Power Appar. Syst., Vol. PAS-92, no. 3, pp. 871-876 (1973).

98. A. H. Cookson, O. Farish, and G. M. L. Sommerman, "Effect of Conducting Particles on AC Corona and Breakdown in Compressed SF_6", IEEE Trans. on Power Appar. Syst., Vol. PAS-91, no. 4, pp. 1329-1338 (1972).

99. A. H. Cookson and R. E. Wootton, "Ac Corona and Breakdown Characteristics for Rod Gaps in Compressed Hydrogen, SF_6, and Hydrogen+SF_6 Mixtures", IEEE Trans. on Power Appar. Syst., Vol. PAS-97, no.2, pp. 415-423 (1978).

100. R. Cortina, M. Sforzini, and A. Taschini, "Strength Characteristics of Air Gaps Subjected to Interphase Switching Surges", IEEE Trans. on Power Appar. Syst., Vol. PAS-89, no. 3, pp. 448-452 (1970).

101. B. H. Crichton and D. J. Tedford, "The Application of Low-Pressure Experimental Data to the Calculation of Electrical Discharge Thresholds in Compressed Gases", J. Phys. D: Appl. Phys., Vol. 9, pp. 1079-1083 (1976).

102. J. C. Cronin and E. R. Perry, "Optimization of Insulators for Gas-Insulated Systems", IEEE Trans. on Power Appar. Syst., Vol. PAS-92, no. 2, pp. 558-564 (1973).

103. R. W. Crowe, "Influence of Electrode Configuration Upon Electric Breakdown In Electronegative Gases", J. App. Phys., Vol. 44, no. 2, pp. 653-659 (1973).

104. R. W. Crowe and J. C. Devins, "Sparking Potentials and Molecular Structure of Unsaturated Hydrocarbon Gases", J. Chem. Phys., Vol. 33, no. 2, pp. 413-418 (1960).

105. T. W. Dakin, G. Luxa, G. Oppermann, J. Vigreux, G. Wind, and H. Winkelnkemper, "Breakdown of Gases in Uniform Fields, Paschen Curves for Nitrogen, Air, and Sulfur Hexafluoride", Electra, no. 32, pp. 61-82 (1974).

106. T. N. Daniel, J. Dutton, and F. M. Harris, "Similarity in Air and Nitrogen II. Ionization, Attachment and Detachment Coefficients", Brit. J. Appl. Phys. (J. Phys. D), Vol. 2, pp. 1559-1565 (1969).

107. M. K. Das, "The Discharge in Point-Plane Gaps in Extremely Pure Noble Gases and their Mixtures as well as with Electronegative Gas Additives", Zeit. fur Angew. Phys., Vol. 13, pp. 410-415 (1961).

108. D. E. Davies and R. K. Fitch, "Influence of the Cathode Work Function on the Sparking Potential in Hydrogen", Brit. J. Appl. Phys., Vol. 10, pp. 502-505 (1959).

109. D. E. Davies and B. J. Hopkins, "Cathode Work Function, Sparking Potentials and Secondary Ionization Coefficients for Oxide-Coated Cathodes in Hydrogen", Brit. J. Appl. Phys., Vol. 10, pp. 498-501 (1959).

110. D. K. Davies, "Net Ionization Coefficient in Boron Trifluoride", J. Appl. Phys., Vol. 47, no. 5, pp. 1920-1924 (1976).

111. D. K. Davies, "Ionization and Attachment Coefficients in CO_2:N_2:He and Pure CO_2", J. Appl. Phys., Vol. 49, pp. 127-131 (1978).

112. G. H. L. Davis and A. W. Williams, "Ionization Growth in Carbon Monoxide", J. Phys. D: Appl. Phys., Vol. 10, pp. 269-281 (1977).

113. D. J. DeBitetto and L. H. Fisher, "Second Townsend Coefficient in Oxygen at High Pressures", Phys. Rev., Vol. 111, no. 2, pp. 390-394 (1958).

114. J. C. Devins, "Replacement Gases for SF_6", IEEE Trans. on Elec. Insul., Vol. EI-15, no. 2, pp. 81-86 (1980).

115. J. C. Devins and R. W. Crowe, "Electric Strength of Saturated Hydrocarbon Gases", J. Chem. Phys., Vol. 25, no. 5, pp. 1053-1061 (1956).

116. A. Diessner and J. G. Trump, "Free Conducting Particles in a Coaxial Compressed-Gas-Insulated System", IEEE Trans. on Power Appar. Syst., Vol. PAS-89, no. 8, pp. 1970-1978 (1970).

117. C. Driver, "On the Aftercurrent and its Development to Breakdown in Air for Large Electrode Gaps (7.5-20 cm)", Zeit. fur Angew. Phys., Vol. 27, pp. 326-333 (1969).

118. J. Dupuy and A. Gilbert, "Comparison of Point-to-Plane Discharges in Air and SF_6", J. Phys. D: Appl. Phys., Vol. 15, pp. 655-664 (1982).

119. J. Dutton, "Spark Breakdown in Uniform Fields", Electrical Breakdown of Gases, ed. by J. M. Meek and J. D. Craggs, John Wiley and Sons, New York, pp. 209-318 (1978).

120. J. Dutton, N. B. Evans, and G. B. Morgan, "Secondary Ionization Coefficients in Oxygen at Pressures up to Atmospheric", Brit. J. Appl. Phys., Vol. 18, pp. 1287-1293 (1967).

121. J. Dutton, F. M. Harris, and D. B. Hughes, "Electrical Breakdown of Nitrous Oxide", Proc. IEE, Vol. 120, no. 8, pp. 941-944 (1973).

122. J. Dutton, F. M. Harris, and D. B. Hughes, "Electrical Breakdown of N_2O, SF_6, and N_2O/SF_6 Mixtures", Proc. IEE, Vol. 121, no. 3, pp. 223-226 (1974).

123. J. Dutton, F. M. Harris, and D. B. Hughes, "Ion-Molecule Reactions and the Electrical Breakdown of Mixtures of Nitrous Oxide and Oxygen", J. Phys. D: Appl. Phys., Vol. 8, pp. 1640-1646 (1975).

124. J. Dutton, F. M. Harris, and G. J. Jones, "Departures from Paschen's Law for Sulphur Hexafluoride", Proc. IEE, Vol. 118, no. 5, pp. 732-733 (1971).

125. J. Dutton, M. H. Hughes, and B. C. Tan, "Ionization Coefficients in Helium, Neon and Helium-Neon Mixtures", J. Phys. B: Atom. Molec. Phys., Vol. 2, pp. 890-897 (1969).

126. J. Dutton and W. T. Morris, "The Mechanism of the Electrical Breakown of Air in Uniform Fields at Voltages Up to 400 kV", Brit. J. Appl. Phys., Vol. 18, pp. 1115-1120 (1967).

127. H. I. Ellington, "Breakdown Voltage Measurements in Alkali-Metal-Seeded Rare Gases at Elevated Temperatures and Atmospheric Pressure", Brit. J. Appl. Phys. (J. Phys. D), Vol. 1, pp. 49-53 (1968).

128. F. Endo and T. Kichikawa, "Initial Breakdown Strength and Area Effect under DC Voltages in SF_6 Gas", Elec. Eng. in Japan, Vol. 99, no. 3, pp. 8-16 (1979).

129. F. Endo, T. Kichikawa, R. Ishikawa, and J. Ozawa, "Dielectric Characteristics of SF_6 Gas for Application to HVDC Systems", IEEE Trans. on Power Appar. Syst., Vol. PAS-99, no. 3, pp. 847-855 (1980).

130. M. Ermel, "The N_2+SF_6 Gas Mixture for Insulation Medium in High Voltage Technology", ETZ-A, Vol. 96, no. 5, pp. 231-235 (1975).

131. M. Ermel, "SF_6-Breakdown in Coaxial-Cylindrical Field with Direct Voltage", ETZ-A, Vol. 96, pp. 505-510 (1975).

132. M. B. Eteiba and F. A. M. Rizk, "Voltage-Time Characteristics of Particle-Initiated Impulse Breakdown in SF_6 and SF_6-N_2", IEEE Trans. on Power Appar. Syst., Vol. PAS-102, no. 5, pp. 1352-1360 (1983).

133. T. Facklam and H. G. Lautensclager, "Breakdown Characteristics of SF_6+Air Mixtures in a Sphere-Plane Geometry at Alternating and Impulse Voltage Stress", Archiv fur Elektrotechnik, Vol. 4, pp. 369-373 (1982).

134. B. Fallou, J. Galand, and B. Bouvier, "Dielectric Breakdown of Gaseous Helium at Very Low Temperatures", Cryogenics, Vol. 10, no. 2, pp. 142-146 (1970).

135. O. Farish, S. J. Dale, and A. M. Sletten, "Impulse Breakdown of Positive Rod-Plane Gaps In Hydrogen and Hydrogen-SF_6 Mixtures", IEEE Trans. on Power Appar. Syst., Vol. PAS-95, no. 5, pp. 1639-1649 (1976).

136. O. Farish, S. J. Dale, and A. M. Sletten, "Impulse Breakdown of Negative Rod-Plane Gaps in Hydrogen and Hydrogen-SF_6 Mixtures", IEEE Trans. on Power Appar. Syst., Vol., PAS-97, no. 1, pp. 118-124 (1978).

137. O. Farish, O. E. Ibrahim, and B. H. Crichton, "Effect of Electrode Surface Roughness on Breakdown in Nitrogen/SF_6 Mixtures", Proc. IEE, Vol. 123, no. 10, pp. 1047-1050 (1976).

138. O. Farish and D. J. Tedford, "Similarity in Air and Nitrogen I. Breakdown Voltages", Brit. J. Appl. Phys. (J. Phys. D), Vol. 2, pp. 1555-1558 (1969).

139. P. Felsenthal and J. M. Proud, "Nanosecond-Pulse Breakdown in Gases", Phys. Rev., Vol. 139A, no. 6, pp. A1796-A1797 (1965).

140. L. H. Fisher and B. Bederson, "Formative Time Lags of Spark Breakdown in Air in Uniform Fields at Low Overvoltages", Phys. Rev., Vol. 81, no. 1, pp. 109-114 (1951).

141. T. R. Foord, "Positive Point-to-Plane Spark Breakdown of Compressed Gases", Nature, Vol. 166, pp. 688-689 (1950).

142. T. R. Foord, "Some Experiments on Positive Point-to-Plane Corona and Spark Breakdown of Compressed Gases", Proc. IEE, Vol. 100, Part II, pp. 585-590 (1953).

143. J. B. Freely and L. H. Fisher, "Ionization, Attachment, and Breakdown Studies in Oxygen", Phys. Rev., Vol. 133, pp. A304-A310 (1964).

144. H. Fujinami, T. Takuma, and Y. Aoshima, "Impulse Breakdown Characteristics in SF_6 Gas in the Presence of a Local Spark", IEEE Trans. on Elec. Insul., Vol. EI-18, no. 4, pp. 429-435 (1983).

145. H. Fujita, T. Kouno, Y. Noguchi, and S. Veguri, "Breakdown Voltages of Gaseous N_2 and Air from Normal to Cryogenic Temperatures", Cryogenics, Vol. 18, no. 4, pp. 195-200 (1978).

146. G. Gallet, B. Hutzler, and J. Riu, "Analysis of the Switching Impulse Strength of Phase-to-Phase Air Gaps", IEEE Trans. on Power Appar. Syst., Vol. PAS-97, no. 2, pp. 485-494 (1978).

147. G. Gallet, G. Leroy, R. Lacey, and I. L. Kromer, "General Expression for Positive Switching Impulse Strength Valid Up to Extra Long Air Gaps", IEEE Trans. on Power Appar. Syst., Vol. PAS-94, no. 6, pp. 1989-1993 (1975).

148. B. Ganger, "New Insight into the Physics of Gas Breakdown in Homogeneous Field", Bull. Schweizerischen Elektro-Tech. Vereins, Vol. 70, pp. 662-672 (1979).

149. B. Ganger, "Gas Breakdown in Nonuniform Field", Bull. Schweizerischen Elektro-Tech. Vereins, Vol. 71, pp. 1281-1289 (1980).

150. B. Ganger, "Alternative Gases for SF_6", Bull. Schweizerischen Elektro-Tech. Vereins, Vol. 73, pp. 209-214 (1982).

151. R. Geballe and F. S. Linn, "Electrical Breakdown in CSF_8", J. Appl. Phys., Vol. 21, pp. 592-594 (1950).

152. R. Geballe and M. L. Reeves, "A Condition on Uniform Field Breakdown in Electron-Attaching Gases", Phys. Rev., Vol. 92, no. 4, pp. 867-868 (1953).

153. D. W. George and P. H. Richards, "Electrical Field Breakdown in Sulphur Hexafluoride", Brit. J. Appl. Phys. (J. Phys.D), Vol. 2, pp. 1470-1471 (1969).

154. J. Gerhold, "Dielectric Breakdown of Helium at Low Temperatures", Cryogenics, Vol. 12, no. 5, pp. 370-376 (1972).

155. E. Gockenbach, "The Breakdown Behavior of Gaseous Trichlorotrifluoroethane", Bull. Schweizerischen Elektro-Tech. Vereins, Vol. 68, pp. 1314-1317 (1977).

156. E. Gockenbach, "Dielectric Strength of Various Halocarbons and Their Mixtures with N_2 and SF_6", ETZ-A, Vol. 99, pp. 328-331 (1978).

157. D. E. Golden and L. H. Fisher, "Anomalies in Ionization Coefficients and in Uniform Field Breakdown in Argon for Low Values of E/p", Phys. Rev., Vol. 123, no. 4, pp. 1079-1086 (1961).

158. M. Goldman and R. S. Sigmond, "Corona and Insulation", IEEE Trans. on Elec. Insul., Vol. EI-17, no. 2, pp. 90-105 (1982).

159. B. N. Gorin and A. V. Shkilev, "Discharge Development in Long Gaps in the Presence of Impulse Voltage of Positive Polarity", Elektricestvo, no. 2, pp. 29-39 (1974).

160. Y. Gosho, "Considerable Change in DC Breakdown Characteristics of Positive-Point-Plane Gaps Due to Varying Concentrations of NO_x, CO_2, and H_2O in Air and Intensity of Irradiation", J. Phys. D: Appl. Phys., Vol. 15, pp. 1217-1225 (1982).

161. G. R. Govinda Raju and M. S. Dincer, "Measurement of Ionization and Attachment Coefficients in SF_6 and SF_6+N_2", J. Appl. Phys., Vol. 53, no. 12, pp. 8562-8567 (1982).

162. G. R. Govinda Raju and R. Hackam, "Sparking Potentials of Dry Air, Humid Air and Water Vapours Between Concentric Sphere-Hemisphere Electrodes", Proc. IEE, Vol. 120, pp. 927-933 (1973).

163. G. R. Govinda Raju and R. Hackam, "Note on Paschen Law and Similarity Theory at the Minimum Breakdown Voltage", IEEE Trans. Plasma Science, Vol. PS-2, pp. 63-66 (1974).

164. G. R. Govinda Raju and R. Hackam, "Electrical Breakdown of a Point-Plane Gap in High Vacuum and with Variation of Pressure in the Range 10^{-7}-10^{-2} Torr of Air, Nitrogen, Helium, Sulphur Hexafluoride and Argon", J. Appl. Phys., Vol. 45, pp. 4784-4794 (1974).

165. G. R. Govinda Raju and R. Hackam, "A Generalized Method for Predicting the Sparking Potentials of Electronegative Gases", Proc. IEEE, Vol. 69, pp. 850-851 (1981).

166. G. R. Govinda Raju and R. Hackam, "Breakdown Field Strength of SF_6, N_2O, SF_6+N_2, and SF_6+N_2O", J. Appl. Phys., Vol. 52, no. 6, pp. 3912-3920 (1981).

167. G. R. Govinda Raju and R. Hackam, "Calculation of Sparking Potentials in Industrially Important Insulating Electronegative Gases", J. Appl. Phys., Vol. 53, no. 8, pp. 5557-5564 (1982).

168. P. Grunberg, "The Validity of the Similarity Law for the Onset of Self-Sustained Discharges in Air", ETZ-A, Vol. 94, no. 1, pp. 20-25 (1973).

169. R. Hackam, "Total Secondary Ionization Coefficients and Breakdown Potentials of Hydrogen, Methane, Ethylene, Carbon Monoxide, Nitrogen, Oxygen, and Carbon Dioxide Between Mild Steel Coaxial Cylinders", J. Phys. B: Atom. Molec. Phys., Vol. 2, pp. 216-233 (1969).

170. R. Hackam, "Total Secondary Ionization Coefficients and Breakdown Potentials of Monatomic Gases Between Mild Steel Coaxial Electrodes", J. Phys. B: Atom. Molec. Phys., Vol. 2, pp. 201-215 (1969).

171. R. Hackam, "Electrical Breakdown of Water Vapour", Physics Letters, Vol. 33A, 1065-1066 (1970).

172. R. Hackam, "Breakdown of Water Vapor Between Plane Parallel Electrodes", J. Phys. D: Appl. Phys., Vol. 4, pp. 1134-1139 (1971).

173. R. Hackam and L. Altoheh, "AC (50 Hz) and DC Electrical Breakdown of Vacuum Gaps and with Variation of Air Pressure in the Range 10^{-7}-10^{-2} Torr using OFHC Copper, Nickel, Aluminum, and Niobium Parallel Plane Electrodes", J. Appl. Phys., Vol. 46, pp. 627-636 (1975).

174. R. Hackam and G. R. Govinda Raju, "Corona Inception and Electrical Breakdown in a Coaxial Cylindrical Geometry", IEEE Trans. on Elec. Insul., Vol. EI-8, no. 4, pp. 142-148 (1973).

175. J. H. Hagenguth and T. W. Liao, "Impulse Corona-Detection Measurement of Intensity, and Damage Produced", AIEE Trans., Vol. 71, Part III, pp. 461-465 (1952).

176. J. H. Hagenguth, A. F. Rohlfs, and W. J. Degnan, "Sixty-Cycle and Impulse Sparkover of Large Gap Spacings", AIEE Trans., Vol. 71, Part III, pp. 455-460 (1952).

177. G. Hahn, P. Zacke, A. Fischer, and H. Boecker, "Humidity Influence on Switching Impulse Breakdown of a 50 cm Rod-Plane Gap", IEEE Trans. on Power Appar. Syst., Vol. PAS-95, no. 4, pp. 1145-1152 (1976).

178. B. F. Hampton and S. P. Fleming, "Impulse Flashover of Particle-Contaminated Spacers in Compressed Sulphur Hexafluoride", Proc. IEE, Vol. 120, no. 4, pp. 514-522 (1973).

179. M. Hara and M. Akazaki, "Influence of Floating Particles on Switching Surge Flashover Characteristics of Long Air Gaps", Elec. Eng. in Japan, Vol. 91, no. 2, pp. 81-90 (1971).

180. T. Harada, Y. Aihara, and Y. Aoshima, "Influence of Humidity on Lightning and Switching Impulse Flashover Voltages", IEEE Trans. on Power Appar. Syst., Vol. PAS-90, no. 4, pp. 1433-1442 (1971).

181. K. Hasebe and H. Kawai, "Pulsed Spark Voltage in Point-to-Plate Gap in the Presence of Positive DC Point Corona Discharge", Elec. Eng. in Japan, Vol. 84, no. 12, pp. 109-119 (1964).

182. W. Hauschild, "Experimental Simulation of SF_6-Breakdown Under Practical Conditions", Elektrie, Vol. 30, pp. 354-356 (1976).

183. W. Hauschild, "Topical Problems of SF_6 Insulating Technique", Elektrie, Vol. 31, pp. 636-641 (1977).

184. W. Hauschild, "Contribution to the Understanding of the Dielectric Strength of SF_6 as a Random Quantity", Elektrie, Vol. 33, pp. 296-299 (1979).

185. W. Hauschild, "Breakdown of SF_6-Insulation with Particles at DC Voltage with Superimposed Switching Impulse", Elektrie, Vol. 34, pp. 250-253 (1980).

186. W. Hauschild and F. Kielmann, "On Some Fundamental Discharge Processes in the Insulating Gas Sulfur Hexafluoride (SF_6)", Elektrie, Vol. 26, pp. 198-202 (1972).

187. M. Hayashi and Y. Miyoshi, "Formative Time Lags of Spark Breakdown and Discharge Regions in Air", Elec. Eng. in Japan, Vol. 85, no. 5, pp. 88-96 (1965).

188. R. Hazel and E. Kuffel, "Static Field Anode Corona Characteristics in Sulphur Hexafluoride", IEEE Trans. on Power Appar. Syst., Vol. PAS-95, no.1, pp. 178-186 (1976).

189. F. W. Heilbronner, "Leader and Streamer Voltage Gradients", Electra, no. 23, pp. 137-141 (1972).

190. A. Heisen, "Note on Paschen Law and Similarity Theorem in Gaps with Cylindrical and Plane Geometry", IEEE Trans. Plasma Science, Vol. PS-4, pp. 129-133 (1976).

191. J. K. Hepworth, R. C. Klewe, E. H. Lobley, and B. A. Tozer, "The Effect of A.C. Bias Fields on the Impulse Strength of Point-Plane and Sphere-Plane Gaps", IEEE Trans. on Power Appar. Syst., Vol. PAS-92, no. 6, pp. 1898-1899 (1973).

192. J. K. Hepworth, R. C. Klewe, and B. A. Tozer, "A Model of Impulse Breakdown in Divergent Field Geometries", J. Phys. D: Appl. Phys., Vol. 5, pp. 730-740 (1972).

193. W. Hermstein, "The Filamentary Current Discharge and its Transition into a Glow", Archiv fur Elecktrotechnik, Vol. 45, pp. 209-224 (1960).

194. W. Hermstein, "Development of Positive Pre-discharges to Breakdown in Air", Archiv fur Elecktrotechnik, Vol. 45, pp. 279-288 (1960).

195. A. E. D. Heylen, "Electric Strength, Molecular Structure, and Ultraviolet Spectra of Hydrocarbon Gases", J. Chem. Phys., Vol. 29, no. 4, pp. 813-819 (1958).

196. A. E. D. Heylen, "Ionization Coefficients and Sparking Voltages in Argon-Methane and Argon-Propane Mixtures", Int. J. Electronics, Vol. 24, no. 2, pp. 165-175 (1968).

197. A. E. D. Heylen, "Ionization Coefficients and Sparking Voltages in Argon and Argon-Ethane Mixtures", Brit. J. Appl. Phys. (J. Phys. D), Vol. 1, pp. 179-188 (1968).

198. A. E. D. Heylen, "Maximization of Argon-Hydrocarbon Penning Mixtures", J. Phys. D: Appl. Phys., Vol. 3, pp. 789-796 (1970).

199. A. E. D. Heylen, "Ionization Coefficients and Sparking Voltages in Argon-Long-Chain Hydrocarbon Gas Mixtures", Int. J. Electronics, Vol. 30, no. 2, pp. 121-132 (1971).

200. A. E. D. Heylen, "Ionization Coefficients and Sparking Voltages in Krypton and in Krypton-Olefin Gas Mixtures", Int. J. Electronics, Vol. 31, no. 1, pp. 19-25 (1971).

201. A. E. D. Heylen and T. J. Lewis, "The Electric Strength of Hydrocarbon Gases", Brit. J. Appl. Phys., Vol. 7, pp. 411-415 (1956).

202. A. E. D. Heylen and T. J. Lewis, "The Electric Strength and Molecular Structure of Hydrocarbon Gases", Can. J. Phys., Vol. 36, pp. 721-739 (1958).

203. W. M. Hickam and D. Berg, "Negative Ion Formation and Electrical Breakdown in Some Halogenated Gases", J. Chem. Phys., Vol. 29, no. 3, pp. 517-523 (1958).

204. W. A. Hixson and R. L. Hoffman, "Effects of Negative Ion Space Charge Formation on Nonuniform Air Gaps", Elec. Eng., pp. 710-716 (1963).

205. K. Honda, "Streamer Breakdown Criterion for a Uniform Air Gap", Elec. Eng. in Japan, Vol. 85, no. 8, pp. 43-50 (1965).

206. P. R. Howard, "Insulation Properties of Compressed Electronegative Gases", Proc. IEE, Vol. 104, Part A, pp. 123-138 (1957).

207. P. R. Howard, "Processes Contributing to the Breakdown of Electronegative Gases in Uniform and Non-Uniform Electric Fields", Proc. IEE, Vol. 104, Part A, pp. 139-142 (1957).

208. E. Husain and R. S. Nema, "Surface Discharge Studies with Uniform Field Electrodes at Low Pressures", IEEE Trans. on Elec. Insul., Vol. EI-15, no. 2, pp. 128-133 (1980).

209. E. Husain and R. S. Nema, "Analysis of Paschen Curves for Air, N_2, and SF_6 Using the Townsend Breakdown Equation", IEEE Trans. on Elec. Insul., Vol. EI-17, no. 4, pp. 350-353 (1982).

210. B. Hutzler and D. Hutzler-Barre, "Breakdown Phenomena of Long Gaps Under Switching Impulse Conditions - Time to Breakdown Distribution and Breakdown Probability: Statistical Approach", IEEE Trans. on Power Appar. Syst., Vol. PAS-94, no. 3, pp. 894-898 (1975).

211. B. Hutzler and D. Hutzler-Barre, "Leader Propagation Model for Predetermination of Switching Surge Flashover Voltage of Large Air Gaps", IEEE Trans. on Power Appar. Syst., Vol. PAS-97, no. 4, pp. 1087-1096 (1978).

212. IEEE Committee Report, "Sparkover Characteristics of High Voltage Protective Gaps", IEEE Trans. on Power Appar. Syst., Vol. PAS-93, no. 1, pp. 196-205 (1974).

213. Y. Ichihara and N. Mori, "Flashover Probability of Switching Surges", Elec. Eng. in Japan, Vol. 88, no. 4, pp. 50-60 (1968).

214. C. Ikeda and B. Yoda, "Effects of Electrode Surface Conditions and Dust Particles on the Electrical Breakdown of SF_6 Gas", Elec. Eng. in Japan, Vol. 91, no. 5, pp. 67-74 (1971).

215. Y. Inuishi, "Electrical Discharges of SF_6 Gas in Non-Uniform Fields", Electra, no. 84, pp. 45-52 (1982).

216. H. Isa, "Field Analysis of Sphere-Sphere and Rod-Plane Gaps and Its Application to Calculation of Breakdown Voltage", Elec. Eng. in Japan, Vol. 91, no. 5, pp. 89-100 (1971).

217. H. Itoh, M. Shimozuma, and H. Tagashira, "Boltzmann Equation Analysis of the Electron Swarm Development in SF_6 and Nitrogen Mixtures", J. Phys. D: Appl. Phys., Vol. 13, pp. 1201-1209 (1980).

218. H. Itoh, M. Shimozuma, H. Tagashira, and S. Sakamoto, "Measurement of the Effective Ionization Coefficient and the Static Breakdown Voltage in SF_6 and Nitrogen Mixtures", J. Phys. D: Appl. Phys., Vol. 12, pp. 2167-2172 (1979).

219. H. Jahn, "The Influence of Temperature on the Breakdown Voltage of a Nonuniform Field Gap in Air", Elektrie, Vol. 23, pp. 457-459 (1969).

220. G. Jervis-Hunter and B. A. Tozer, "Anticipation of Electrical Breakdown of Long Air Gaps", J. Phys. D: Appl. Phys., Vol. 7, pp. 383-388 (1974).

221. B. Jones, "Switching Surges and Air Insulation", Phil. Trans. Roy. Soc. London, Vol. A 275, pp. 165-180 (1973).

222. B. Jones and R. T. Waters, "Air Insulation at Large Spacings", Proc. IEE, Vol. 125, no. 11, pp. 1152-1176 (1978).

223. J. Jones, "Ionization Coefficients in Nitrogen", Brit. J. Appl. Phys. (J. Phys. D), Vol. 1, pp. 769-779 (1968).

224. G. A. Kachickas and L. H. Fisher, "Formative Time Lags of Uniform Field Breakdown in Argon", Phys. Rev., Vol. 91, no. 4, pp. 775-779 (1953).

225. G. A. Kachickas and L. H. Fisher, "Formative Time Lags of Uniform Field Breakdown in N_2", Phys. Rev., Vol. 88, no. 4, pp. 878-883 (1952).

226. A. J. Kachler, J. J. LaForest, and L. E. Zaffanella, "Switching Surge Results from Project UHV - Influence of Humidity and Grading Shields", IEEE Trans. on Power Appar. Syst., Vol. PAS-90, no. 5, pp. 2313-2320 (1971).

227. P. W. Karlsson and A. Pedersen, "Inherent Limitations in Uniform Field Discharge Data for SF_6", IEEE Trans. on Power Appar. Syst., Vol. PAS-91, no. 4, pp. 1597-1601 (1972).

228. Y. Kawaguchi and S. Menju, "Breakdown Characteristics of SF_6 in Coaxial Cylindrical Electrodes", Elec. Eng. in Japan, Vol. 90, no. 5, pp. 197-204 (1970).

229. Y. Kawaguchi, K. Sakata, and S. Menju, "Dielectric Breakdown of Sulphur Hexafluoride in Nearly Uniform Fields", IEEE Trans. on Power Appar. Syst., Vol. PAS-90, no. 3, pp. 1072-1078 (1971).

230. Y. Kawaguchi, K. Sakata, and S. Menju, "Effect of a Grounded Cylinder Enclosure on the Breakdown Gradient of Rod Gaps in SF_6", IEEE Trans. on Power Appar. Syst., Vol. PAS-90, no. 3, pp. 1079-1085 (1971).

231. J. Kedzia, E. Brzostek, and J. Skubis, "Breakdown Voltage of Air Insulation with Insulating Material Barriers", Elektrie, Vol. 32, pp. 667-668 (1978).

232. M. Khalifa, M. A. Salam, R. Radwan, and K. Ali, "Calculating the Positive Discharge Onset Voltages of Compressed Air", IEEE Trans. on Power Appar. Syst., Vol. PAS-96, no. 3, pp. 886-895 (1977).

233. F. Kielmann, "Breakdown from Stable Partial Discharges in SF_6 in the Presence of Interrupting and Alternating Voltage", Elektrie, Vol. 28, pp. 326-329 (1974).

234. D. Kind, "An Introduction to High-Voltage Experimental Technique", Vieweg, Braunschweig, pp. 135-151 (1978).

235. L. E. Kline, "Corona Cloud Model Prediction of Switching Surge Flashover Voltages vs. Electrode Geometry", IEEE Trans. on Power Appar. Syst., Vol. PAS-96, no. 2, pp. 543-547 (1977).

236. L. E. Kline, D. K. Davies, C. L. Chen, and P. J. Chantry, "Dielectric Properties for SF_6 and SF_6 Mixtures Predicted from Basic Data", J. Appl. Phys., Vol. 50, no. 11, pp. 6789-6796 (1979).

237. N. Knudsen and F. Iliceto, "Flashover Tests on Large Air Gaps with DC Voltage and with Switching Surges Superimposed on DC Voltage", IEEE Trans. on Power Appar. Syst., Vol. PAS-89, no. 5, pp. 781-788 (1970).

238. W. Kohrman, "The Influence of Humidity on the Electrical Breakdown in Air", Annalen der Physik, Vol. 18, pp. 379-384 (1956).

239. B. Krey, W. Hauschild, and K. H. Buchholz, "Determination of Characteristic Field Intensities in SF_6", Elektrie, Vol. 28, pp. 437-440 (1974).

240. J. Kucera and V. Fiklik, "Correction of Switching Impulse Flashover Voltages for Air Humidity", IEEE Trans. on Power Appar. Syst., Vol. PAS-89, no. 3, pp. 441-447 (1970).

241. J. Kucera, T. W. Liao, and A. F. Rohlfs, "Atmospheric Correction Factors for High Voltage Testing", Electra, no. 21, pp. 74-85 (1972).

242. H. N. Kucukarpaci, H. T. Saelee, and J. Lucas, "Electron Swarm Parameters in Helium and Neon", J. Phys. D: Appl. Phys., Vol. 14, pp. 9-25 (1981).

243. E. Kuffel, "Electron Attachment Coefficients in Oxygen, Dry Air, Humid Air, and Water Vapor", Proc. Phys. Soc., Vol. 74, pp. 297-308 (1959).

244. E. Kuffel and M. Abdullah, High Voltage Engineering, Pergamon Press, New York, pp. 28-77 (1970).

245. E. Kuffel and R. O. Radwan, "Time Lags and the Breakdown and Corona Characteristics in Sulphur Hexafluoride", Proc. IEE, Vol. 113, no. 11, pp. 1863-1872 (1966).

246. E. Kuffel and A. Yializis, "Impulse Breakdown of Positive and Negative Rod-Plane Gaps in SF_6+N_2 Mixtures", IEEE Trans. on Power Appar. Syst., Vol. PAS-97, no. 6, pp. 2359-2366 (1978).

247. J. Kuffel, R. G. van Heeswijk, and J. Reichman, "Atmospheric Influences on the Switching Impulse Performance of 1-Meter Gaps", IEEE Trans. on Power Appar. Syst., Vol. PAS-102, no. 7, pp. 2300-2308 (1983).

248. H. Kuttner, "Determination of the Air and Surface Flashover of Low Voltage Insulation at Lightning Impulse", Elektrie, Vol. 35, pp. 412-416 (1981).

249. H. Kuwahara, S. Inamura, T. Watanabe, and Y. Arahata, "Effect of Solid Impurities on Breakdown in Compressed SF_6 Gas", IEEE Trans. on Power Appar. Syst., Vol. PAS-93, no. 5, pp. 1546-1555 (1974).

250. J. R. Laghari and A. H. Qureshi, "Surface Flashover of Spacers in Compressed Gas-Insulated Systems", IEEE Trans. on Elec. Insul., Vol. EI-16, no. 5, pp. 373-387 (1981).

251. J. R. Laghari and A. H. Qureshi, "A Review of Particle-Contaminated Gas Breakdown", IEEE Trans. on Elec. Insul., Vol. EI-16, no. 5, pp. 388-398 (1981).

252. C. S. Lakshminarasimha, J. Lucas, and D. A. Price, "New Method for Determining the Electron Swarm Parameters in Attaching Gases", Proc. IEE, Vol. 120, no. 9, pp. 1044-1047 (1973).

253. A. Lee and L. S. Frost, "Interruption Capability of Gases and Gas Mixtures in Puffer-Type Interrupter", IEEE Trans. on Plasma Science, Vol. PS-8, no. 4, pp. 362-367 (1980).

254. Z. Y. Lee, "Measurements of Breakdown Potential and Ionization and Attachment in SF_6-CO_2 Mixtures", IEEE Trans. on Elec. Insul., Vol. EI-18, no. 6, pp. 637-641 (1983).

255. E. Lemke and W. Burger, "Estimation of the Breakdown Voltage of Long Air Spark Gaps at Different Field Configurations for Positive Switching Voltage", Elektrie, Vol. 34, pp. 295-297 (1980).

256. G. Leroy, J. G. Bouillard, G. Gallet, and M. F. Simon, "Dielectric Testing and Very High Voltages at the Renardiere Very High Voltage Laboratory", Rev. Gen. Elect., Vol. 80, no. 10, pp. 768-777 (1971).

257. G. Leroy, G. Gallet, R. Kosztaluk, and I. L. Kromer, "Ultra High Voltage Overhead Networks: Determination of Insulation Distances", Rev. Gen. Elect., Numero Special, pp. 27-44 (1974).

258. T. W. Liao and R. E. Plump, "Gaseous Dielectrics", Progress in Dielectrics, Vol. 1, ed. by J. B. Birks and J. H. Schulman, John Wiley and Sons, New York, pp. 143-170 (1959).

259. H. Linck, "Protective Characteristics of a 20-Inch Rod Gap", IEEE Trans. on Power Appar. Syst., Vol. PAS-84, no. 2, pp. 177-181 (1965).

260. F. Llewellyn-Jones, Ionization and Breakdown in Gases, Methuen, London, pp. 46-127 (1957).

261. F. Llewellyn-Jones, "The Development of Theories of the Electrical Breakdown of Gases", Electrical Breakdown and Discharges in Gases - Fundamental Processes and Breakdown, Part A, ed. by E. E. Kunhardt and L. H. Luessen, Plenum Press, New York, pp. 1-71 (1983).

262. F. Llewellyn-Jones and D. E. Davies, "Influence of Cathode Surface Layers on Minimum Sparking Potential of Air and Hydrogen", Proc. Phys. Soc., Vol. B-64, pp. 397-404 (1951).

263. F. Llewellyn-Jones and A. B. Parker, "Electrical Breakdown of Gases I. Spark Mechanism in Air", Proc. Roy. Soc., Vol. A-213, pp. 185-202 (1952).

264. L. B. Loeb, Electrical Coronas - Their Basic Physical Mechanisms, Univ. of Calif. Press, Berkeley (1965).

265. E. J. Los, "A Model for the Study of Switching-Surge Breakdown of Long Air Gaps", IEEE Trans. on Power Appar. Syst., Vol. PAS-97, no. 6, pp. 2382-2392 (1978).

266. A. G. Lyapin, "Breakdown of Compressed Gases", Sov. Phys. Tech. Phys., Vol. 21, no. 6, pp. 745-750 (1976).

267. J. M. K. MacAlpine and A. H. Cookson, "Impulse Breakdown of Compressed Gases Between Dielectric-Covered Electrodes", Proc. IEE, Vol. 117, no. 3, pp. 646-652 (1970).

268. N. H. Malik, "Streamer Breakdown Criterion for Compressed Gases", IEEE Trans. on Elec. Insul., Vol. EI-16, no. 5, pp. 463-467 (1981).

269. N. H. Malik and A. H. Qureshi, "Breakdown Mechanisms in Sulphur-Hexafluoride", IEEE Trans. on Elec. Insul., Vol. EI-13, no. 3, pp. 135-145 (1978).

270. N. H. Malik and A. H. Qureshi, "A Review of Electrical Breakdown in Mixtures of SF_6 and Other Gases", IEEE Trans. on Elec. Insul., Vol. EI-14, no. 1, pp. 1-13 (1979).

271. N. H. Malik and A. H. Qureshi, "Calculation of Discharge Inception Voltages in SF_6+N_2 Mixtures", IEEE Trans. on Elec. Insul., Vol. EI-14, no. 2, pp. 70-76 (1979).

272. N. H. Malik and A. H. Qureshi, "The Influence of Voltage Polarity and Field Non-uniformity on the Breakdown Behavior of Rod-Plane Gaps Filled with SF_6", IEEE Trans. on Elec. Insul., Vol. EI-14, no. 6, pp. 327-333 (1979).

273. N. H. Malik and A. H. Qureshi, "Breakdown Gradients in SF_6+N_2, SF_6+Air, and SF_6+CO_2 Mixtures", IEEE Trans. on Elec. Insul., Vol. EI-15, no. 5, pp. 413-418 (1980).

274. N. H. Malik, A. H. Qureshi, and Y. A. Safar, "DC Voltage Breakdown of SF_6-Air and SF_6-CO_2 Mixtures in Rod-Plane Gaps", IEEE Trans. on Elec. Insul., Vol. EI-18, no. 6, pp. 629-636 (1983).

275. N. H. Malik, A. H. Qureshi, and G. D. Theophilus, "Static Field Breakdown of SF_6+N_2 Mixtures in Rod-Plane Gaps", IEEE Trans. on Elec. Insul., Vol. EI-14, no. 2, pp. 61-69 (1979).

276. V. N. Maller and M. S. Naidu, "Ionization and Breakdown in SF_6-Air and Freon-Nitrogen Mixtures", IEEE Trans. on Plasma Science, Vol. PS-3, no. 2, pp. 49-52 (1975).

277. V. N. Maller and M. S. Naidu, "Sparking Potentials and Ionization Coefficients in SF_6", Proc. IEE, Vol. 123, no. 1, pp. 107-108 (1976).

278. V. N. Maller and M. S. Naidu, "Prebreakdown in Sulphur Hexafluoride: A Semi-empirical Approach", Ind. J. Technol., Vol. 15, pp. 110-113 (1977).

279. V. N. Maller and K. D. Srivastava, "Corona Inception Phenomena in Solid-Air Composite Systems", IEEE Trans. on Elec. Insul., Vol. EI-18, no. 4, pp. 402-408 (1983).

280. J. H. Mason, "Discharges", IEEE Trans. on Elec. Insul., Vol. EI-13, no. 4, pp. 211-238 (1978).

281. I. W. McAllister and A. Pedersen, "Corona-Onset Field-Strength Calculations and the Equivalent Radius Concept", Archiv fur Elektrotechnik, Vol. 64, pp. 43-48 (1981).

282. G. W. McClure, "Similitude and Anode Material Effects in H_2 and D_2 Discharges Below the Critical Pressure", J. Electron. Control., Vol. 7, pp. 439-447 (1959).

283. N. R. McCormick and J. D. Craggs, "Some Measurements of the Relative Dielectric Strength of Gases", Brit. J. Appl. Phys., Vol. 5, pp. 171-173 (1954).

284. R. J. Meats, "Pressurized-Helium Breakdown at Very Low Temperatures", Proc. IEE, Vol. 119, no. 6, pp. 760-766 (1972).

285. J. M. Meek and J. D. Craggs, Electrical Breakdown of Gases, Oxford University Press, London, pp. 291-347 (1953).

286. C. Menemenlis and G. Harbec, "Coefficient of Variation of the Positive Impulse Breakdown of Long Air Gaps", IEEE Trans. on Power Appar. Syst., Vol. PAS-93, no. 3, pp. 916-927 (1974).

287. C. Menemenlis and G. Harbec, "Particularities of Air Insulation Behavior", IEEE Trans. on Power Appar. Syst., Vol. PAS-95, no. 6, pp. 1814-1821 (1976).

288. C. Menemenlis and G. Harbec, "Behavior of Air Insulating Gaps of DC Systems Under Impulse, DC and Composite Voltages", IEEE Trans. on Power Appar. Syst., Vol. PAS-98, no. 6, pp. 2065-2075 (1979).

289. C. Menemenlis, G. Harbec, and J. F. Grenon, "Switching Impulse Corona Inception and Breakdown of Large High-Voltage Electrodes in Air", IEEE Trans. on Power Appar. Syst., Vol. PAS-97, no. 6, pp. 2367-2374 (1978).

290. C. Menemenlis, G. Harbec, and J. F. Grenon, "Behavior of Air Insulating Gaps Stressed by Switching Overvoltages with a Double Peak", IEEE Trans. on Power Appar. Syst., Vol. PAS-97, no. 6, pp. 2375-2381 (1978).

291. C. Menemenlis and K. Isaksson, "The Front Shape of Switching Impulses and Its Effect on Breakdown Parameters", IEEE Trans. on Power Appar. Syst., Vol. PAS-93, no. 5, pp. 1380-1389 (1974).

292. M. Menes, "Buildup of a Discharge in Argon", Phys. Rev., Vol. 116, no. 3, pp. 481-486 (1959).

293. M. Menes and L. H. Fisher, "Positive Point-to-Plane Corona Studies in Air", Phys. Rev., Vol. 94, no. 1, pp. 1-6 (1954).

294. S. Menju, H. Aoyagi, K. Takahashi, and H. Ohno, "Dielectric Breakdown of High Pressure SF_6 in Sphere and Coaxial Cylinder Gaps", IEEE Trans. on Power Appar. Syst., Vol. PAS-93, no. 5, pp. 1706-1712 (1974).

295. S. Menju and K. Takahashi, "DC Dielectric Strength of an SF_6 Gas Insulated System", IEEE Trans. on Power Appar. Syst., Vol. PAS-97, no. 1, pp. 217-224 (1978).

296. G. A. Mesyats, Y. I. Bychkov, and A. I. Iskoldskii, "Nanosecond Formation Time of Discharges in Short Air Gaps", Sov. Phys. Tech. Phys., Vol. 13, no. 8, pp. 1051-1055 (1969).

297. G. A. Mesyats, V. V. Kremnev, G. S. Korshunov, and Y. B. Yankelevich, "Spark Current and Voltage in Nanosecond Breakdown of a Gas Gap", Sov. Phys. Tech. Phys., Vol. 14, no. 1, pp. 49-53 (1969).

298. C. G. Miller and L. B. Loeb, "Starting Potentials of Positive and Negative Coronas with Coaxial Geometry in Pure N_2, Pure O_2, and Various Mixtures at Pressures from Atmospheric to 27 mm", J. Appl. Phys., Vol. 22, no. 6, pp. 740-741 (1951).

299. H. C. Miller, "Paschen Curve in Nitrogen", J. Appl. Phys., Vol. 34, pp. 3418 (1963).

300. H. C. Miller, "Breakdown Potential of Neon Below the Paschen Minimum", Physica, Vol. 30, pp. 2059-2067 (1967).

301. J. S. Mirza, C. W. Smith, and J. H. Calderwood, "Sparking Potentials of Saturated Hydrocarbon Gases", J. Phys. D: Appl. Phys., Vol. 4, pp. 1126-1133 (1971).

302. T. Mizukami, H. Sato, and N. Ando, "Gas-Insulated Transmission Cable with Semi-Prefabricated Unit", IEEE Trans. on Power Appar. Syst., Vol PAS-98, no. 5, pp. 1709-1716 (1979).

303. J. L. Moruzzi, "Ionization and Attachment in Difluorodicloromethane", Brit. J. Appl. Phys., Vol. 14, p. 938 (1963).

304. J. L. Moruzzi and J. D. Craggs, "Measurement of Ionization and Attachment Coefficients in C_3F_8", Proc. Phys. Soc., Vol. 82, pp. 979-985 (1963).

305. W. Mosch and W. Hauschild, "A Condition for SF_6-Breakdown in a Weak Inhomogeneous Field", Elektrie, Vol. 26, pp. 250-252 (1972).

306. W. Mosch and W. Hauschild, "Possibilities for Calculation of the Breakdown Voltage for Weakly Inhomogeneous Field Configurations in SF_6", Elektrie, Vol. 28, pp. 152-155 (1974).

307. W. Mosch and E. Lemke, "On Breakdown of Inhomogeneous Air Spark Gaps Stressed with Mixed Voltages", Elektrie, Vol. 26, pp. 306-307 (1972).

308. E. K. Muller, "Oscillographic Investigation of Gas Discharges in Hydrogen and Nitrogen at High Pressure I. Breakdown Voltages", Zeit. Angew. Phys., Vol. 21, pp. 219-244 (1966).

309. M. Nagata, Y. Yokoi, and I. Miyachi, "Electrical Breakdown Characteristics in High-Temperture Gases", Elec. Eng. Japan, Vol. 97, no. 3, pp. 1-6 (1977).

310. M. S. Naidu and A. N. Prasad, "Mobility, Diffusion and Attachment of Electrons in Perfluoroalkanes", J. Phys. D: Appl. Phys., Vol. 5, pp. 983-993 (1972).

311. M. S. Naidu, A. N. Prasad, and J. D. Craggs, "Electron Transport, Attachment and Ionizations in c-C_4F_8 and iso-C_4F_8", J. Phys. D: Appl. Phys., Vol. 5, pp. 741-746 (1972).

312. K. Nakanishi, A. Yoshioka, Y. Shibuya, and T. Nitta, "Experimental Study of the Breakdown Characteristics of a Gas-Insulated Bus", IEEE Trans. on Elec. Insul., Vol. EI-15, no. 2, pp. 111-117 (1980).

313. P. Narbut, D. Berg, C. N. Works, and T. W. Dakin, "Factors Controlling Electric Strength of Gaseous Insulation", AIEE Trans., Vol. 78, Part III-A, pp. 545-552 (1959).

314. W. Naumann and D. Scheibe, "The Voltage Dependence of Surface and Air-Gap Flashover for Low Voltage Materials", Elektrie, Vol. 23, pp. 102-105 (1969).

315. J. K. Nelson and R. J. Manterfield, "Sparking Potentials in Fluorocarbon Vapours", Proc. IEE, Vol. 124, no. 6, pp. 586-588 (1977).

316. R. S. Nema, S. V. Kulkarni, and E. Husain, "Calculation of Sparking Potentials of SF_6 and SF_6-Gas Mixtures in Uniform and Non-Uniform Electric Fields", IEEE Trans. on Elec. Insul., Vol. EI-17, no. 1, pp. 70-75 (1982).

317. R. S. Nema, S. V. Kulkarni, and E. Husain, "On Calculation of Breakdown Voltages of Mixtures of Electron Attaching Gases", IEEE Trans. on Elec. Insul., Vol. EI-17, no. 5, pp. 434-440 (1982).

318. T. Nitta, K. Kawane, and N. Yamada, "Influence of Humidity on the Prebreakdown Phenomena of Atmospheric Air", Elec. Eng. in Japan, Vol. 86, no. 4, pp. 57-65 (1966).

319. T. Nitta and Y. Shibuya, "Electrical Breakdown of Long Gaps in Sulfur Hexafluoride", IEEE Trans. on Power Appar. Syst., Vol. PAS-90, no. 3, pp. 1065-1071 (1971).

320. T. Nitta, Y. Shibuya, and Y. Fujiwara, "Voltage-Time Characteristics of Electrical Breakdown in SF_6", IEEE Trans. on Power Appar. Syst., Vol. PAS-94, no. 1, pp. 108-115 (1975).

321. T. Nitta, Y. Shibuya, Y. Fujiwara, Y. Arahata, H. Takahashi, and H. Kuwahara, "Factors Controlling Surface Flashover in SF_6 Gas Insulated Systems", IEEE Trans. on Power Appar. Syst., Vol. PAS-97, no. 3, pp. 959-968 (1978).

322. T. Nitta, N. Yamada, and Y. Fujiwara, "Area Effect of Electrical Breakdown in Compressed SF_6", IEEE Trans. on Power Appar. Syst., Vol. PAS-93, no. 2, pp. 623-629 (1974).

323. T. Noguchi and K. Horii, "Effect of Statistical Time Lags on AC-Induced Breakdown in Nitrogen Under High Pressure", Elec. Eng. in Japan, Vol. 87, no. 12, pp. 100-108 (1967).

324. T. Noguchi and K. Horii, "Distribution of Impulse Breakdown Voltages of a Uniform Field in a Closed Tank", Elec. Eng. in Japan, Vol. 88, no. 11, pp. 69-78 (1968).

325. Y. Noguchi, T. Kouno, and S. Hoh, "Dielectric Breakdown of Gaseous Nitrogen and Air at Low Temperature", Elec. Eng. in Japan, Vol. 92, no. 2, pp. 8-14 (1972).

326. G. Olivier, Y. Gervais, and D. Mukhedkar, "A New Approach to Compute Uniform Field Breakdown of Gases", IEEE Trans. on Power Appar. Syst., Vol. PAS-97, no. 3, pp. 969-976 (1978).

327. T. Oshige, "Positive Streamer Spark Breakdown at Low Pressures in Air", J. Appl. Phys., Vol. 38, no. 6, pp. 2528-2534 (1967).

328. T. Oshige and H. Matsuo, "Study of Pulse Corona in Concentric Cylinder", Elec. Eng. in Japan, Vol. 85, no. 5, pp. 31-39 (1965).

329. J. D. Pace and A. B. Parker, "The Breakdown of Argon at Low Pressure", J. Phys. D: Appl. Phys., Vol. 6, pp. 1525-1536 (1973).

330. M. O. Pace, L. G. Christophorou, D. R. James, R. Y. Pai, R. A. Mathis, and D. W. Bouldin, "Improved Unitary and Multicomponent Gaseous Insulators", IEEE Trans. on Elec. Insul., Vol. EI-13, no. 1, pp. 31-36 (1978).

331. R. Y. Pai, L. G. Christophorou, and A. A. Christodoulides, "Electron Attachment to Perfluorocarbon Compounds. II. c-C_6F_{10}, c-C_6F_{12}, C_7F_8, and C_8F_{16}: Relevance to Gaseous Dielectrics", J. Chem. Phys., Vol. 70, pp. 1169-1176 (1979).

332. S. T. Pai and J. P. Marton, "Filamentary Breakdown of Gases in the Presence of Dielectric Surfaces", J. Appl. Phys., Vol. 53, no. 12, pp. 8583-8588 (1982).

333. B. C. Papadias, "Breakdown Characteristics of a Sphere-Plate Triggered Air Spark-Gap", IEEE Trans. on Power Appar. Syst., Vol. PAS-90, no. 5, pp. 2257-2266 (1971).

334. R. Papoular, *Electrical Phenomena in Gases*, American Elsevier, New York, (1965).

335. H. Parekh, M. M. A. Salama, and K. D. Srivastava, "Calculation of Corona Onset and Breakdown Voltage in Short Point-to-Plane Air Gaps", J. Appl. Phys., Vol. 49, no. 1, pp. 107-112 (1978).

336. H. Parekh and K. D. Srivastava, "Breakdown Voltage in Particle Contaminated Compressed Gases", IEEE Trans. on Elec. Insul., Vol. EI-14, no. 2, pp. 101-106 (1979).

337. H. Parekh and K. D. Srivastava, "Effect of Avalanche Space Charge Field on the Calculation of Corona Onset Voltage", IEEE Trans. on Elec. Insul., Vol. EI-14, no. 4, pp. 181-192 (1979).

338. H. Parekh and K. D. Srivastava, "Some Computations and Observations on Corona-Stabilized Breakdown in SF_6", IEEE Trans. on Elec. Insul., Vol. EI-15, no. 2, pp. 87-94 (1980).

339. L. Paris, "Influence of Air Gap Characteristics on Line-to-Ground Switching Surge Strength", IEEE Trans. on Power Appar. Syst., Vol. PAS-86, no. 8, pp. 936-947 (1968).

340. L. Paris and R. Cortina, "Switching and Lightning Impulse Discharge Characteristics of Large Air Gaps and Long Insulator Strings", IEEE Trans. on Power Appar. Syst., Vol. PAS-87, no. 4, pp. 947-957 (1968).

341. J. H. Park and H. N. Cones, "Spark-Gap Flashover Measurement for Steeply Rising Voltage Impulses", J. of Res., Nat. Bur. of Standards, Vol. 66C, no. 3, pp. 197-207 (1962).

342. J. C. Paul, T. N. Saha, and B. Chakravarty, "On the Gaseous Breakdown", Indian J. Phys., Vol. 48, pp. 138-142 (1974).

343. J. C. Paul, T. N. Saha, and B. Chakravarty, "Calculation of Relative Electric Strength of Various Gases at Atmospheric Pressure - An Approach", Indian J. Phys., Vol. 48, pp. 564-566 (1974).

344. P. Pech, J. Kourtev, and V. Orlinov, "Striking and Running Voltages in a Glow Discharge for Combinations of Fe/Ne with and without Hg", Beitrage aus der Plasmaphysik, Vol. 13, pp. 135-142 (1973).

345. P. Pech, J. Kourtev, and V. Orlinov, "Striking and Running Voltages in a Glow Discharge for Combinations of Fe/Ne+1% Ar with and without Hg", Beitrage aus der Plasmaphysik, Vol. 13, pp. 341-345 (1973).

346. A. Pedersen, "Calculation of Spark Breakdown or Corona Starting Voltages in Nonuniform Fields", IEEE Trans. on Power Appar. Syst., Vol. PAS-86, no. 2, pp. 200-206 (1967).

347. A. Pedersen, "Criteria for Spark Breakdown in Sulfur Hexafluoride", IEEE Trans. on Power Appar. Syst., Vol. PAS-89, no. 8, pp. 2043-2048 (1970).

348. A. Pedersen, "The Effect of Surface Roughness on Breakdown in SF_6", IEEE Trans. on Power Appar. Syst., Vol. PAS-94, no. 5, pp. 1749-1754 (1975).

349. A. Pedersen, P. W. Karlsson, E. Bregnsbo, and T. M. Nielsen, "Anomalous Breakdown in Uniform Field Gaps in SF_6", IEEE Trans. on Power Appar. Syst., Vol. PAS-93, no. 6, pp. 1820-1826 (1974).

350. A. Pedersen, P. W. Karlsson, and J. Lebeda, "The Effect of Field Nonuniformity and Asymmetry on Ionization Current Growth Measurements in Sulfur Hexafluoride", IEEE Trans. on Power Appar. Syst., Vol. PAS-90, no. 5, pp. 2175-2180 (1971).

351. J. M. Pelletier, Y. Gervais, and D. Mukhedkar, "Dielectric Strength of N_2+He Mixtures and Comparison with N_2+SF_6 and CO_2+SF_6 Mixtures", IEEE Trans. on Power Appar. Syst., Vol. PAS-100, no. 8, pp. 3861-3869 (1981).

352. A. S. Perlin, "Electrical Discharge in Nitrogen And Sulfur Hexafluoride in a Uniform Field", Soviet Phys. Tech. Phys., Vol. 17, no. 5, pp. 813-817 (1972).

353. W. Pfeiffer, "Voltage Breakdown in Compressed Gases (Spark Laws)", Zeit. fur Angew. Phys., Vol. 32, pp. 265-273 (1971).

354. W. Pfeiffer, "Voltage Breakdown in Compressed SF_6", ETZ-A, Vol. 95, pp. 405-410 (1974).

355. W. Pfeiffer, "Gas Breakdown in Case of Steep-Fronted Pulses and Insulator Interfaces", IEEE Trans. on Elec. Insul., Vol. EI-17, no. 6, pp. 505-511 (1982).

356. W. Pfeiffer and P. Volker, "Formative Time Lag in SF_6 and N_2 for Steep Fronted Impulse Voltages", ETZ-Archiv, Vol. 4, pp. 65-67 (1982).

357. C. T. Phelps and R. F. Griffiths, "Dependence of Positive Corona Streamer Propagation on Air Pressure and Water Vapor Content", J. Appl. Phys., Vol. 47, no. 7, pp. 2929-2934 (1976).

358. J. Pilling, "Insulation Material Barriers for Enhancement of Breakdown Voltage in Inhomogeneous Air Spark Gaps", Elektrie, Vol. 23, pp. 463-467 (1969).

359. F. Pinnekamp and L. Niemeyer, "Qualitative Model of Breakdown in SF_6 in Inhomogeneous Gaps", J. Phys. D: Appl. Phys., Vol. 16, pp. 1293-1302 (1983).

360. A. N. Prasad, "Measurement of Ionization and Attachment Coefficients in Dry Air in Uniform Fields and the Mechanism of Breakdown", Proc. Phys. Soc., Vol. 74, pp. 33-41 (1959).

361. A. N. Prasad and J. D. Craggs, "Measurement of Ionization and Attachment Coefficients in Humid Air in Uniform Fields and the Mechanism of Breakdown", Proc. Phys. Soc., Vol. 76, pp. 223-232 (1960).

362. A. N. Prasad and J. D. Craggs, "Measurement of Townsend's Ionization Coefficients and Attachment Coefficients in Oxygen", Proc. Phys. Soc., Vol. 77, pp. 385-398 (1961).

363. Y. Qiu and E. Kuffel, "Dielectric Strength of Gas Mixtures Comprising SF_6, CO, c-C_4F_8 and SF_6, N_2, c-C_4F_8", IEEE Trans. on Power Appar. Syst., Vol. PAS-102, no. 5, pp. 1445-1451 (1983).

364. C. Raja Rao and G. R. Govinda Raju, "Growth of Ionization Currents in Dry Air at High Values of E/N", J. Phys. D: Appl. Phys., Vol. 4, pp. 494-503 (1971).

365. C. Raja Rao, R. Hackam, and G. R. Govinda Raju, "Sparking Potentials of and Similarity Law in Nitrous Oxide Between Coaxial Concentric Cylinders", IEEE Trans. on Elec. Insul., Vol. EI-11, no. 2, pp. 55-58 (1976).

366. S. A. A. Razzak and C. C. Goodyear, "Ionization and Attachment in Perfluorobutane", Brit. J. Appl. Phys. (J. Phys. D), Vol. 1, pp. 1215-1218 (1968).

367. S. A. A. Razzak and C. C. Goodyear, "Measurement of Ionization and Attachment Coefficients in Bromine", Brit. J. Appl. Phys. (J. Phys. D), Vol. 2, pp. 1577-1581 (1969).

368. A. Rein, "Breakdown Mechanisms and Breakdown Criteria in Gases, Measurements of Discharge Parameters, A Literature Survey", Electra, no. 32, pp. 43-60 (1974).

369. A. Rein, A. Arnesen, and I. Johansen, "A Statistical Approach to the Streamer Breakdown Criterion in SF_6", IEEE Trans. on Power Appar. Syst., Vol. PAS-96, no. 3, pp. 945-954 (1977).

370. H. E. Remde and H. Boecker, "Voltage-Current Characteristics During Propagation of a Surge Breakdown of a Point-to-Plate Gap with Insulating Barrier", IEEE Trans. on Power Appar. Syst., Vol. PAS-91, no. 1, pp. 271-276 (1972).

371. Les Renardieres Group, "Positive Discharges in Long Air Gaps at Les Renardieres - 1975 Results and Conclusions", Electra, no. 53, pp. 31-153 (1977).

372. K. Richter, "On the Probability of 'Streamer' Formation from a Large Electron Avalanche", Zeit. fur Physik, Vol. 158, pp. 312-321 (1960).

373. A. V. Risbud and M. S. Naidu, "Sparking Potentials and Ionization Coefficients in Some Electronegative Gases and Their Mixtures", Indian J. of Pure and Appl. Phys., Vol. 16, pp. 32-36 (1978).

374. H. Ritow, "The Role of Space Charge in Gas Breakthrough Between Equal Parallel Plane Electrodes Below the Paschen Minimum", J. Electron. Control., Vol. 7, pp. 423-438 (1959).

375. F. A. M. Rizk, "Effect of Large Electrodes on Sparkover Characteristics of Air Gaps and Station Insulators", IEEE Trans. on Power Appar. Syst., Vol. PAS-97, no. 4, pp. 1224-1231 (1978).

376. F. A. M. Rizk and M. B. Eteiba, "Impulse Breakdown Voltage-Time Curves of SF_6 and SF_6-N_2 Coaxial-Cylinder Gaps", IEEE Trans. on Power Appar. Syst., Vol. PAS-101, no. 12, pp. 4460-4471 (1982).

377. F. A. M. Rizk, C. Masetti, and R. P. Comsa, "Particle-Initiated Breakdown in SF_6 Insulated Systems Under High Direct Voltage", IEEE Trans. on Power Appar. Syst., Vol. PAS-98, no. 3, pp. 825-836 (1979).

378. M. Robinson, "The Corona Threshold for Coaxial Cylinders in Air at High Pressures", IEEE Trans. on Power Appar. Syst., Vol. PAS-86, no. 2, pp. 185-189 (1967).

379. M. Robinson, "Critical Pressures of the Positive Corona Discharge between Concentric Cylinders in Air", J. Appl. Phys., Vol. 40, no. 13, pp. 5107-5112 (1969).

380. L. Rothhardt, J. Mastovsky, G. Jahn, and J. Blaha, "Breakdown Experiments in Air and Nitrogen Above 1500 K", J. Phys. D: Appl. Phys., Vol. 14, pp. 715-721 (1981).

381. H. Ryzko, "Transition from Multiple-Avalanche to Single-Avalanche Mechanism in the Breakdown of Air in a Homogeneous Field", Arkiv fur Fysik, Vol. 25, no. 35, pp. 481-507 (1964).

382. Y. A. Safar, N. H. Malik, and A. H. Qureshi, "Impulse Breakdown Behavior of Negative Rod-Plane Gaps in SF_6+N_2, SF_6+Air, and SF_6+CO_2 Mixtures", IEEE Trans. on Elec. Insul., Vol. EI-17, no. 5, pp. 441-450 (1982).

383. M. M. A. Salama, H. Parekh, and K. D. Srivastava, "Corona Inception under Switching Surge for Point-to-Plane Long Gaps", J. Appl. Phys., Vol. 47, no. 7, pp. 2915-2922 (1976).

384. M. M. A. Salama, H. Parekh, and K. D. Srivastava, "Model for Switching Surge Breakdown of a Point-to-Plane Air Gap", J. Appl. Phys., Vol. 47, no. 10, pp. 4426-4429 (1976).

385. M. M. A. Salama, H. Parekh, and K. D. Srivastava, "A Comment on the Methods of Calculation of Corona Onset Voltage", Appl. Phys. Lett., Vol. 30, no. 3, pp. 139-141 (1977).

386. G. Schmiedl, "The Influence of Humidity on the Breakdown Voltage of Meter Long Air Insulation Gaps", Elektrie, Vol. 25, pp. 19-21 (1971).

387. L. S. Schmitz and G. W. Penney, "Sparkover in Mixtures of Air and Water Vapor", IEEE Trans. on Power Appar. Syst., Vol. PAS-86, no. 3, pp. 360-364 (1967).

388. H. M. Schneider and F. J. Turner, "Switching-Surge Flashover Characteristics of Long Sphere-Plane Gaps for UHV Station Design", IEEE Trans. on Power Appar. Syst., Vol. PAS-94, no. 2, pp. 551-560 (1975).

389. M. J. Schonhuber, "Breakdown Voltage Characteristics of Inert and Molecular Gases in a Uniform Electrode Arrangement in the Fore, Intermediate, and High Vacuum Regions", Archiv fur Eleckotechnik, Vol. 52, pp. 28-39 (1968).

390. M. J. Schonhuber, "Breakdown of Gases Below Paschen Minimum: Basic Design Data of High-Voltage Equipment", IEEE Trans. on Power Appar. Syst., Vol. PAS-88, no.2, pp. 100-107 (1969).

391. J. Schramm and K. Witter, "Gas Discharges in Very Small Gaps in Relation to Electrography", Appl. Phys. (Springer-Verlag), Vol. 1, no. 6, pp. 331-337 (1973).

392. S. Schrier, "On the Breakdown Voltages of Some Electronegative Gases at Low Pressures", IEEE Trans. on Power Appar. Syst., Vol. 83, pp. 468-471 (1964).

393. G. A. Schroder, "The Influence of Humidity on the Breakdown of a Parallel Plane Gap", Annalen der Physik, Vol. 18, pp. 385-386 (1956).

394. G. A. Schroder, "Measurement of the Statistical Breakdown Field Strength in Room Air in a Homogeneous Field for Distances of 2 to 9 cm", Zeit. fur Angew. Phys., Vol. 13, pp. 296-303 (1961).

395. W. Schulz, "The Influence of Freely Moving Foreign Particles on the Breakdown in Electric Field", Bull. Schweizerischen Elektro-Tech. Vereins, Vol. 70, pp. 673-678 (1979).

396. A. Schwab and R. Zentner, "The Transition from Pulsed to Pulseless Corona Discharges", ETZ-A, Vol. 89, pp. 402-407 (1968).

397. A. H. Sharbaugh and P. K. Watson, "Breakdown Strengths of a Perfluorocarbon Vapor (FC-75) and Mixtures of the Vapor with SF_6", IEEE Trans. on Power Appar. Syst., Vol. PAS-83, pp. 131-136 (1964).

398. A. H. Sharbaugh and P. K. Watson, "The Electric Strength of Hexane Vapor and Liquid in the Critical Region", J. Appl. Phys., Vol. 48, no. 3, pp. 943-950 (1977).

399. M. Shimozuma, H. Itoh, and H. Tagashira, "Measurement of the Ionization and Attachment Coefficients in SF_6 and Air Mixtures", J. Phys. D: Appl. Phys., Vol. 15, pp. 2443-2449 (1982).

400. M. Shimozuma and H. Tagashira, "Measurement of the Ionization and Attachment Coefficients in SF_6 and Helium Mixtures", J. Phys. D: Appl. Phys., Vol. 16, pp. 1283-1291 (1983).

401. M. Shimozuma, H. Tagashira, and H. Hasegawa, "The Ionization and Attachment Coefficients in Carbon Tetrafluoride", J. Phys. D: Appl. Phys., Vol. 16, pp. 971-976 (1983).

402. M. C. Siddagangappa, C. S. Lakshminarasimha, and M. S. Naidu, "Ionization and Attachment in Binary Mixtures of SF_6-N_2 and CCl_2F_2-N_2", J. Phys. D: Appl. Phys., Vol. 16, pp. 763-772 (1983).

403. M. C. Siddagangappa, C. S. Lakshminarasimha, and M. S. Naidu, "Electron Mean Energy, Secondary Ionization Coefficients and $(E/P)_{crit}$ in Binary Mixtures of SF_6-N_2 and CCl_2F_2-N_2", J. Phys. D: Appl. Phys., Vol. 16, pp. 1595-1601 (1983).

404. D. J. Skipper and P. I. McNeall, "Impulse-Strength Measurements on Compressed-Gas Insulation for Extra-High-Voltage Power Cables", Proc. IEE, Vol. 112, no. 1, pp. 103-108 (1965).

405. H. Sohst, "The Breakdown Voltage in Air (760 Torr) in a Homogeneous Field (7 to 30 cm Distance)", Zeit. fur Angew. Phys., Vol. 14, pp. 620-627 (1962).

406. K. R. Spriggs, "Limiting Values of Critical Electric Stress, and the Design Prediction of EHV/UHV SF_6 Insulation Breakdown", IEEE Trans. on Elec. Insul., Vol. EI-14, no. 3, pp. 142-147 (1979).

407. E. Steiniger, "The Breakdown Behavior of SF_6 Under DC, AC, and Impulse Voltage Stresses", ETZ-A, Vol. 96, no. 11, pp. 510-514 (1975).

408. P. Sturk, "Measurements of the Field Strength in a Plane Air-Gap, Especially When Introducing Additional Space Charges", Zeit. fur Angew. Phys., Vol. 26, pp. 315-319 (1969).

409. T. Suzuki, "Breakdown Process in Rod-to-Plane Gaps with Negative Switching Impulses", IEEE Trans. on Power Appar. Syst., Vol. PAS-94, no. 4, pp. 1381-1389 (1975).

410. T. Suzuki, I. Kishijima, Y. Ohuch, and K. Anjo, "Parallel Multigap Flashover Probability", IEEE Trans. on Power Appar. Syst., Vol. PAS-88, no. 12, pp. 1814-1823 (1969).

411. T. Suzuki and K. Miyake, "Breakdown Process of Long Air Gaps with Positive Switching Impulses", IEEE Trans. on Power Appar. Syst., Vol. PAS-94, no. 3, pp. 1021-1029 (1975).

412. T. Suzuki and K. Miyake, "Experimental Study of Breakdown Voltage-Time Characteristics of Large Air Gaps with Lightning Impulses", IEEE Trans. on Power Appar. Syst., Vol. PAS-96, no. 1, pp. 227-233 (1977).

413. T. Takagi, H. Hayashi, T. Higashino, S. Nishihara, and K. Itaka, "Dielectric Strength of SF_6 Gas and 3-Core Type CGI Cables Under Inter-Phase Switching Impulse Voltages", IEEE Trans. on Power Appar. Syst., Vol. PAS-93, no. 1, pp. 354-359 (1974).

414. T. Takuma, "Discharge Mechanism of Gases and Its Application to Calculation of Flashover Voltages of Sphere Gaps in Atmospheric Air", Elec. Eng. in Japan, Vol. 91, no. 1, pp. 63-75 (1971).

415. T. Takuma and M. Chiba, "Positive DC Corona and Spark Characteristics in High Pressure Air", Elec. Eng. in Japan, Vol. 88, no. 9, pp. 10-15 (1968).

416. T. Takuma and T. Watanabe, "Discharge Characteristics of Long Gaps in High-Pressure SF_6 Gas", Elec. Eng. in Japan, Vol. 90, no. 3, pp. 166-176 (1970).

417. T. Takuma and T. Watanabe, "Theoretical Analysis of Discharge Characteristics in High Pressure SF_6 Gas", Elec. Eng. in Japan, Vol. 90, no. 4, pp. 26-33 (1970).

418. T. Takuma and T. Watanabe, "Comparison between Gas Insulation and Atmospheric Air Insulation", Elec. Eng. in Japan, Vol. 90, no. 6, pp. 227-244 (1970).

419. T. Takuma, T. Watanabe, and K. Kita, "Breakdown Characteristics of Compressed-Gas Mixtures in Nearly Uniform Field", Proc. IEE, Vol. 119, no. 9, pp. 927-928 (1972).

420. T. Tatuso, T. Tada, and Y. Watanabe, "Switching Surge Sparkover Characteristics of Air Gaps and Insulator Strings Under Nonstandard Conditions", IEEE Trans. on Power Appar. Syst., Vol. PAS-87, no. 2, pp. 361-367 (1968).

421. L. C. Thanh, "Distribution of Electric Fields in a Rod-to-Plane Gap at the Onset of Negative Corona", Proc. IEE, Vol. 126, no. 3, pp. 270-275 (1979).

422. L. Thione, "The Dielectric Strength of Large Air Insulation", Surges in High-Voltage Networks, ed. by K. Ragaller, Plenum Press, New York, pp. 165-205 (1980).

423. J. Thoris, B. Leon, A. Dubois, and J. C. Bobo, "Dielectric Breakdown of Cold Gaseous Helium in Large Gaps", Cryogenics, Vol. 10, no. 2, pp. 147-149 (1970).

424. N. G. Trinh, F. A. M. Rizk, and C. Vincent, "Electrostatic-Field Optimization of the Profile of Epoxy Spacers for Compressed SF_6-Insulated Cables", IEEE Trans. on Power Appar. Syst., Vol. PAS-99, no. 6, pp. 2164-2174 (1980).

425. N. G. Trinh and C. Vincent, "Bundled-Conductors for EHV Transmission Systems with Compressed-SF_6 Insulation", IEEE Trans. on Power Appar. Syst., Vol. PAS-97, no. 6, pp. 2198-2206 (1978).

426. I. Tuneyase and M. Akazaki, "Breakdown Processes of a Negative Point-to-Plane Air Gap at Atmospheric Pressure under Impulse Voltage", Elec. Eng. in Japan, Vol. 93, no. 6, pp. 6-12 (1973).

427. T. Udo, "Sparkover Characteristics of Large Gap Spaces and Long Insulation Strings", IEEE Trans. on Power Appar. Syst., Vol. PAS-83, no. 5, pp. 471-483 (1964).

428. T. Udo, "Switching Surge and Impulse Sparkover Characteristics of Large Gap Spacings and Long Insulator Strings", IEEE Trans. on Power Appar. Syst., Vol. PAS-84, no. 4, pp. 304-309 (1965).

429. T. Udo, "Switching Surge Sparkover Characteristics of Air Gaps and Insulator Strings Under Practical Conditions", IEEE Trans. on Power Appar. Syst., Vol. PAS-85, no. 8, pp. 859-864 (1966).

430. T. Udo and T. Tada, "Long-Tail Surge Flashover Characteristics of Air-Gaps and Insulator Strings", Elec. Eng. in Japan, Vol. 83, no. 9, pp. 39-53 (1963).

431. T. Udo, T. Tada, and Y. Watanabe, "Flashover Characteristics of Large Gap Spacings Due to Pulse and Switching Surges", Elec. Eng. in Japan, Vol. 84, no. 12, pp. 69-78 (1964).

432. T. Udo, T. Tada, and Y. Watanabe, "Flashover Characteristics of Gaps and Insulators Due to Switching Surges", Elec. Eng. in Japan, Vol. 86, no. 5, pp. 22-31 (1966).

433. T. Udo and Y. Watanabe, "DC High-Voltage Sparkover Characteristics of Gaps and Insulator Strings", IEEE Trans. on Power Appar. Syst., Vol. PAS-87, no. 1, pp. 266-270 (1968).

434. R. J. Van Brunt and M. Misakian, "Mechanisms for Inception of DC and 60-Hz AC Corona in SF_6", IEEE Trans. on Elec. Insul., Vol. EI-17, no. 2, pp. 106-120 (1982).

435. A. K. Vijh, "Correlation Between Electric Strengths and Heats of Atomization of Gaseous Dielectrics", J. Mater. Sci., Vol. 11, pp. 784-785 (1976).

436. A. K. Vijh, "Intermolecular Bonding and the Electric Strengths of Dielectric Gases", J. Mater. Sci., Vol. 11, pp. 1374-1375 (1976).

437. A. K. Vijh, "Electric Strength and Molecular Properties of Gaseous Dielectrics", IEEE Trans. on Elec. Insul., Vol. EI-12, no. 4, pp. 313-315 (1977).

438. A. K. Vijh, "On the Relative Strengths and the Molecular Weights of Gases", IEEE Trans. on Elec. Insul., Vol. EI-17, no. 1, pp. 84-87 (1982).

439. O. V. Volkova, A. S. Rejngold, and V. J. Cernysev, "Influence of Humidity on Flashover Voltages of Long Air Gaps", Elektricestvo, no. 3, pp. 49-53 (1968).

440. Q. Vuhuw and R. P. Comsa, "Influence of Gap Length on Wire-Plane Corona", IEEE Trans. on Power Appar. Syst., Vol. PAS-88, no. 10, pp. 1462-1475 (1969).

441. C. F. Wagner and A. R. Hileman, "Mechanism of Breakdown of Laboratory Gaps", AIEE Trans., Vol. 80, Part III, pp. 604-622 (1961).

442. K. H. Wagner, "Ionization, Electron-Attachment, Detachment, and Charge-Transfer in Oxygen and Air", Z. Physik, Vol. 241, pp. 258-270 (1971).

443. T. Watanabe and T. Takuma, "The Breakdown and Discharge Extension of Long Gaps In Nitrogen+SF_6 and Air+SF_6 Gas Mixtures", J. Appl. Phys., Vol. 48, no. 8, pp. 3281-3287 (1977).

444. Y. Watanabe, "Switching Surge Flashover Characteristics of Long Air Gaps and Long Insulator Strings", Elec. Eng. in Japan, Vol. 86, no. 12, pp. 96-101 (1966).

445. Y. Watanabe, "Switching Surge Flashover Characteristics of Extremely Long Air Gaps", IEEE Trans. on Power Appar. Syst., Vol. PAS-86, no. 8, pp. 933-936 (1968).

446. Y. Watanabe, "Switching Impulse Flashover Characteristics of Thin Wire Gaps", IEEE Trans. on Power Appar. Syst., Vol. PAS-90, no. 5, pp. 2301-2305 (1971).

447. R. T. Waters, "Spark Breakdown in Non-Uniform Fields", Electrical Breakdown of Gases, ed. by J. M. Meek and J. D. Craggs, John Wiley and Sons, New York, pp. 385-532(1978).

448. R. T. Waters and R. E. Jones, "The Impulse Breakdown Voltage and Time-Lag Characteristics of Long Gaps in Air, I. The Positive Discharge", Phil. Trans. of the Royal Soc. of London, Series A, Vol. 256, pp. 185-212 (1964).

449. R. T. Waters and R. E. Jones, "The Impulse Breakdown and Time-Lag Characteristics of Long Gaps in Air, II. The Negative Discharge", Phil. Trans. of the Royal Soc. of London, Series A, Vol. 256, pp. 213-234 (1964).

450. P. K. Watson and A. H. Sharbaugh, "The Electric Strength of Nitrogen at Elevated Pressures and Small Gap Spacings", J. Appl. Phys., Vol. 40, no. 1, pp. 328-334 (1969).

451. G. F. Weston, "Glow Discharge Characteristics of Helium-Neon Mixtures", Brit. J. Appl. Phys., Vol. 10, pp. 523-526 (1959).

452. L. C. Whitman, "Impulse Voltage Tests on Air and C_3F_8", IEEE Trans. on Elec. Insul., Vol. 1, no. 2, pp. 44-48 (1965).

453. L. C. Whitman and T. J. Lanoue, "The Effect of Gas-Cell Diameter on Dielectric Strength Determination", IEEE Trans. on Elec. Insul., Vol. EI-4, no. 4, pp. 104-110 (1969).

454. A. Wieland, "Breakdown Mechanisms in Electronegative Gases (SF_6) and in Gas Mixtures", ETZ-A, Vol. 94, pp. 370-373 (1973).

455. J. Wiesinger, "Reduction of the Electric Strength of Spark Gaps from Line Impulse Voltage", Bull. Schweizerischen Elektro-Tech. Vereins, Vol. 58, pp. 113-118 (1967).

456. B. G. Williams, "Impulse-Voltage Breakdown of Cold Pressurized Helium", Proc. IEE, Vol. 121, no. 2, pp. 161-164 (1974).

457. W. A. Wilson, J. H. Simons, and T. J. Brice, "The Dielectric Strength of Gaseous Fluorocarbons", J. Appl. Phys., Vol. 21, pp. 203-205 (1950).

458. R. E. Wootton, "Some Aspects of Breakdown in Gases", IEEE Trans. on Elec. Insul., Vol. EI-17, no. 6, pp. 499-504 (1982).

459. C. N. Works and T. W. Dakin, "Dielectric Breakdown of Sulfur Hexafluoride in Nonuniform Fields", AIEE Trans., Vol. 72, pp. 682-687 (1953).

460. C. N. Works and E. W. Lindsay, "Electrical Breakdown of Gases and Vapors of Chloro-Fluoro-Hydrocarbons", AIEE Trans., Vol. 77, Part III, pp. 1659-1663 (1958).

461. A. Yializis, N. H. Malik, A. H. Qureshi, and E. Kuffel, "Impulse Breakdown and Corona Characteristics for Rod-Plane Gaps in Mixtures of SF_6 and Nitrogen with Less Than 1% of SF_6 Content", IEEE Trans. on Power Appar. Syst., Vol. PAS-98, no. 5, pp. 1832-1840 (1979).

462. D. R. Young, "Electrical Breakdown in CO_2 from Low Pressures to the Liquid State", J. Appl. Phys., Vol. 21, pp. 222-231 (1950).

463. P. Zacke, A. Fischer, and H. Boecker, "Breakdown Phenomena of Rod-Rod Gaps Under Impulse Voltages of Opposite Polarity on Both Electrodes", IEEE Trans. on Power Appar. Syst., Vol. PAS-96, no. 2, pp. 701-708 (1977).

464. W. Zaengl and R. Baumgartner, "On the Cause of Deviations from Paschen's Law in SF_6", ETZ-A, Vol. 96, no. 11, pp. 510-514 (1975).

465. A. R. M. Zaghloul, R. M. Radwan, and M. S. Abon-Seada, "Characteristic Time of Oxygen: Calculation and Theoretical Study", IEEE Trans. on Elec. Insul., Vol. EI-11, no. 1, pp. 28-32 (1976).

IX. Technical Conference Proceedings

1. International Symposium on Gaseous Dielectrics. Proceedings:

   a) Gaseous Dielectrics III, ed. by L. G. Christophorou, Pergamon Press, New York (1982).
   b) Gaseous Dielectrics II, ed. by L. G. Christophorou, Pergamon press, New York (1980).
   c) Gaseous Dielectrics, ed. by L. G. Christophorou, NTIS, CONF-780301, (1978).

2. Gaseous Electronics Conference. Proceedings:

   Abstracts published annually for thirty-six conferences in the Bulletin of the American Physical Society.

3. IEEE International Symposium on Electrical Insulation. Proceedings:

   Conference records for 1982, -80, -78, -76 published by the Institute for Electrical and Electronics Engineers, Inc., New York.

4. Conference on Electrical Insulation and Dielectric Phenomena (CEIDP). Proceedings:

   a) Annual reports for 1981-3 CEIDP published by Institute for Electrical and Electronics Engineers, Inc., New York.
   b) Annual reports for CEIDP before 1981 published by National Academy Press, Washington, DC.

5. International Coference on Gas Discharges and Their Applications (CGA). Proceedings:

   a) Proceedings of Seventh ICGA, 1982 published by Peter Peregrinus Ltd., London.
   b) Proceedings of Sixth-First ICGA (1980-70) published by Institution of Electrical Engineers, London.

6. International Symposium on High Voltage Engineering. Proceedings:

   Four conferences from 1977-83, papers distributed but proceedings not published.

7. International Conferences on Phenomena in Ionized Gases.
   Proceedings:

   Sixteen conferences from 1951-1983, proceedings possibly available from different publishers.

☆U.S. GOVERNMENT PRINTING OFFICE: 1984 420 997 70

NBS-114A (REV. 2-80)

U.S. DEPT. OF COMM. **BIBLIOGRAPHIC DATA SHEET** *(See instructions)*	1. PUBLICATION OR REPORT NO. NBS TN 1185	2. Performing Organ. Report No.	3. Publication Date April 1984

4. TITLE AND SUBTITLE

Bibliography of Data on Electrical Breakdown in Gases

5. AUTHOR(S)

R. J. Van Brunt and W. E. Anderson

6. PERFORMING ORGANIZATION *(If joint or other than NBS, see instructions)*

NATIONAL BUREAU OF STANDARDS
DEPARTMENT OF COMMERCE
WASHINGTON, D.C. 20234

7. Contract/Grant No.

8. Type of Report & Period Covered

Final

9. SPONSORING ORGANIZATION NAME AND COMPLETE ADDRESS *(Street, City, State, ZIP)*

U. S. Department of Energy
Office of Electric Energy Systems
Washington, DC 20585

10. SUPPLEMENTARY NOTES

☐ Document describes a computer program; SF-185, FIPS Software Summary, is attached.

11. ABSTRACT *(A 200-word or less factual summary of most significant information. If document includes a significant bibliography or literature survey, mention it here)*

This report consists of a bibliography of currently published data on electrical breakdown in gases. The bibliography contains a list of archival papers and books published since 1950, an index indicating the references that give particular types of data for each gas, an author index, and a list of relevant, regular technical conferences. The citations given in the bibliography contain experimental or theoretical data on breakdown which include: 1) sparking potentials; 2) breakdown voltages; 3) critical fields, or field-to-gas density ratios; 4) corona inception voltages; 5) voltage-time characteristics; 6) relative and absolute dielectric strengths; and 7) breakdown probabilities. Types of data considered include those which apply to uniform and nonuniform fields; ac, dc, and impulse voltages; and possible effects of particles, surfaces, interfaces, and corona. This bibliography is intended to serve as a guide in locating data on breakdown which are most relevant to particular applications.

12. KEY WORDS *(Six to twelve entries; alphabetical order; capitalize only proper names; and separate key words by semicolons)*

bibliography; critical fields; corona onset; discharge inception; electrical breakdown; gases; sparking potentials

13. AVAILABILITY

☒ Unlimited
☐ For Official Distribution. Do Not Release to NTIS
☒ Order From Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.
☐ Order From National Technical Information Service (NTIS), Springfield, VA. 22161

14. NO. OF PRINTED PAGES

170

15. Price

USCOMM-DC 6043-P80

INSTRUCTIONS

FORM NBS-114A: BIBLIOGRAPHIC DATA SHEET. This bibliographic data sheet meets the standards adopted for use by all U.S. Government agencies. It is needed for NTIS processing and must accompany all NBS papers, those appearing in nongovernmental media as well as those in NBS series, since all reports of NBS technical work are normally entered into the NTIS system. For all GPO publications, it becomes an integral part of the document and is widely used by librarians and abstractors.

Items 1, 2 – Complete if information is available; otherwise Publications Office will complete later. If non-NBS publication, state "see item 10" (Enter other agency sponsor's report number if requested to do so, and enter NBSIR number under item 2).

Item 3 – Complete if known; otherwise Publications Office will complete.

Items 4, 5 – Complete as shown on manuscript. When NBS-114A is resubmitted along with NBS-266, following publication of non-NBS media papers, these items must agree with published paper.

Item 6 – If not NBS, blank out and enter Grantee/Contractor name and address, or if performed jointly, show both.

Item 7 – Complete when applicable.

Item 8 – Enter "Interim," "Final," or period covered.

Item 9 – Enter all sponsors' names and addresses. Include NBS if also a sponsor.

Item 10 – Enter other relevant information, i.e., related or superseded documents. Also used by Publications Office for Library of Congress catalog number, and entry of non-NBS media citation upon receipt of Form NBS-266 from author. Check block if appropriate and attach SF185.

Item 11, 12 – Prepare abstract and key words with special care. These are published separately by NBS, NTIS, and other bibliographic services, and are vital elements in guiding readers to your paper. The key words will be used as entries in a subject index. See NBS Communications Manual for additional guidance.

Item 13 – Indicate "Unlimited" – for open-literature documents cleared under NBS editorial procedures, or "For official distribution. Do not release to NTIS" – for limited, restricted, or need-to-know material (See Communications Manual). Publications Office will mark appropriate "order" box and complete Stock Number when known.

Items 14, 15 – Leave blank. To be completed by Publications Office or call Printing and Duplicating for NBSIR's.

NBS TECHNICAL PUBLICATIONS

PERIODICALS

JOURNAL OF RESEARCH—The Journal of Research of the National Bureau of Standards reports NBS research and development in those disciplines of the physical and engineering sciences in which the Bureau is active. These include physics, chemistry, engineering, mathematics, and computer sciences. Papers cover a broad range of subjects, with major emphasis on measurement methodology and the basic technology underlying standardization. Also included from time to time are survey articles on topics closely related to the Bureau's technical and scientific programs. As a special service to subscribers each issue contains complete citations to all recent Bureau publications in both NBS and non-NBS media. Issued six times a year. Annual subscription: domestic $18; foreign $22.50. Single copy, $5.50 domestic; $6.90 foreign.

NONPERIODICALS

Monographs—Major contributions to the technical literature on various subjects related to the Bureau's scientific and technical activities.

Handbooks—Recommended codes of engineering and industrial practice (including safety codes) developed in cooperation with interested industries, professional organizations, and regulatory bodies.

Special Publications—Include proceedings of conferences sponsored by NBS, NBS annual reports, and other special publications appropriate to this grouping such as wall charts, pocket cards, and bibliographies.

Applied Mathematics Series—Mathematical tables, manuals, and studies of special interest to physicists, engineers, chemists, biologists, mathematicians, computer programmers, and others engaged in scientific and technical work.

National Standard Reference Data Series—Provides quantitative data on the physical and chemical properties of materials, compiled from the world's literature and critically evaluated. Developed under a worldwide program coordinated by NBS under the authority of the National Standard Data Act (Public Law 90-396).

NOTE: The principal publication outlet for the foregoing data is the Journal of Physical and Chemical Reference Data (JPCRD) published quarterly for NBS by the American Chemical Society (ACS) and the American Institute of Physics (AIP). Subscriptions, reprints, and supplements available from ACS, 1155 Sixteenth St., NW, Washington, DC 20056.

Building Science Series—Disseminates technical information developed at the Bureau on building materials, components, systems, and whole structures. The series presents research results, test methods, and performance criteria related to the structural and environmental functions and the durability and safety characteristics of building elements and systems.

Technical Notes—Studies or reports which are complete in themselves but restrictive in their treatment of a subject. Analogous to monographs but not so comprehensive in scope or definitive in treatment of the subject area. Often serve as a vehicle for final reports of work performed at NBS under the sponsorship of other government agencies.

Voluntary Product Standards—Developed under procedures published by the Department of Commerce in Part 10, Title 15, of the Code of Federal Regulations. The standards establish nationally recognized requirements for products, and provide all concerned interests with a basis for common understanding of the characteristics of the products. NBS administers this program as a supplement to the activities of the private sector standardizing organizations.

Consumer Information Series—Practical information, based on NBS research and experience, covering areas of interest to the consumer. Easily understandable language and illustrations provide useful background knowledge for shopping in today's technological marketplace.

Order the **above** *NBS publications from: Superintendent of Documents, Government Printing Office, Washington, DC 20402.*

Order the **following** *NBS publications—FIPS and NBSIR's—from the National Technical Information Service, Springfield, VA 22161.*

Federal Information Processing Standards Publications (FIPS PUB)—Publications in this series collectively constitute the Federal Information Processing Standards Register. The Register serves as the official source of information in the Federal Government regarding standards issued by NBS pursuant to the Federal Property and Administrative Services Act of 1949 as amended, Public Law 89-306 (79 Stat. 1127), and as implemented by Executive Order 11717 (38 FR 12315, dated May 11, 1973) and Part 6 of Title 15 CFR (Code of Federal Regulations).

NBS Interagency Reports (NBSIR)—A special series of interim or final reports on work performed by NBS for outside sponsors (both government and non-government). In general, initial distribution is handled by the sponsor; public distribution is by the National Technical Information Service, Springfield, VA 22161, in paper copy or microfiche form.

U.S. Department of Commerce
National Bureau of Standards

Washington, D.C. 20234
Official Business
Penalty for Private Use $300